

A Training Manual in Combatting Childhood Communicable Diseases: Volume II

Prepared for Peace Corps by

CHP INTERNATIONAL

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October 1985

Reprinted by Peace Corps Information Collection & Exchange Training Manual T039A

A Training Manual in COMBATING CHILDHOOD COMMUNICABLE DISEASES
OCTOBER 1985

Prepared for the Peace Corps by CHP International, Inc.
Contract No. PC-284-1011

Funded by the Office of Health
Agency For International Development
PASA No. BAF-0421-P-PC3165-02

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Module 5: Nutrition

Behavioral Objectives

Session 29: Foods and nutrition

Session 30: Methods for nutritional assessment

Session 31: Breastfeeding and weaning

Session 32: Preventing malnutrition

Behavioral Objectives

By the end of this module, participants will be able to:

1. Describe the nutritional content of local foods in terms of "energy foods", "body building foods", and "protective foods" and demonstrate how to combine examples from each group to complement proteins and provide a balanced diet acceptable to the local culture.
2. Prepare one nutritionally sound meal using only locally available foods, utensils, cooking equipment and fuel. The meal will be based on local traditional recipes.
3. List three social and physical signs that can be used to identify nutritionally at-risk infants and children.

4. Identify the major signs and symptoms of malnutrition and specific nutritional deficiencies when shown pictures, slides, or actual children in a clinic.
5. Given a health history of at least one child, demonstrate the ability to use and interpret the Road to Health Growth Chart.
6. Weigh and measure two children to the same precision as the trainer, using the anthropometric techniques described in Session 30.
7. State breast feeding and food requirements of a 6 and 12 month old baby according to weaning guidelines presented in Session 31.
8. Describe the purpose of counseling as detailed in Session 32 and list the six guidelines to follow for counseling practices.

Session 29: Foods and nutrition

Session 29, Handout 29A: Three main food groups

Session 29, Handout 29B: Complementary vegetable proteins

TOTAL TIME:

- 1-2 hours for market visit
- 2 hours for classroom activities
- 2 hours for preparing traditional meal

OVERVIEW

A very basic and logical place to begin learning about nutrition in the developing world is the relationship among food, diet, and nutritional status. Here, participants visit a market place and purchase available foods, especially traditional foods in the local diet.

Back at the training site they categorize the foods into 3 food groups, according to their primary nutrient content. Through an examination of the cost, availability, cultural preference and nutritional content of the foods, participants recognize some of the effects of dietary practices on families in the community.

To gain further insight into the traditional diet and valuable skill in food preparation, participants cook and eat a traditional meal at the end of the session.

OBJECTIVE

- To describe the three main food groups in terms of local foods belonging to each group, the nutrients they offer, and the functions those nutrients serve in the body. (Steps 4, 5)
- To ascertain the local name, cost, availability, nutritional content, and dietary use of foods purchased in the local market. (Steps 2-4)

- To examine the potential impact of the local diet on the community. (Steps 6, 7)
- To prepare one nutritionally sound meal using local foods, and discuss additional ways of combining available foods to create nutritious, affordable and culturally acceptable meals. (Step 8)

RESOURCES

Helping Health Workers Learn, Chapter 25, pp. 39-44.

Handouts:

- 29A: Three Food Groups
- 29B: Complimentary Vegetable Proteins
- 29C: Vocabulary List of Local Foods and Cooking Terms. (to be developed by the trainer).
- 29D: Recipes for Traditional Meals (to be developed by the trainer).

MATERIALS

Newsprint and markers; money to distribute to participants for food purchases; flannel board and figures or other visual aid materials for demonstrating how to teach the three food groups (Step 7); cooking area with local equipment, utensils, and fuel for meal preparation.

Trainer Note

While all of the activities in this session are important and practical for future PCV's, they can be modified to suit different training situations and schedules. For example, the market visit could be scheduled one to two days prior to the classroom activities. The meal preparation can be scheduled for noontime, or the following day.

If possible, coordinate the visit, discussion and meal preparation with language training. Language instructors as well as other host country staff can help develop the vocabulary lists and recipes, accompany participants to the market, and provide cultural assistance in the "kitchen".

For Step 6, ask a participant to prepare a short explanation and demonstration of complementary proteins. Diet for a Small Planet, by Francis M. Lappe, is a good reference for this information.

In addition to developing Handouts 29C and 29D (see "Resources"), be sure to also adapt the attached handouts so that they focus on local food items.

To organize the meal preparation, you will need to plan a menu ahead of time based on the traditional recipes, and make a list of all foods and other items required. Divide the items on the list among participants and tell the groups to purchase these during their market visit.

For additional information and training ideas on foods and nutrition read Session 4 of the Personal Health Training Manual (Peace Corps).

A final note on this session: If participants are assigned to work in CCCD activities which focus heavily on nutrition, MCH, food preparation, and/or working with women's groups, then all of the activities proposed here are essential. These Volunteers need practice to feel comfortable and capable in the market place and in food preparation situations.

Step 1 (10 min)

Introducing the Science of Nutrition

Introduce the session with some brief remarks around the following points:

- Nutrition is the science of food and how your body uses it.
- Food is made up of certain chemical substances that work together and interact with body chemicals to serve the needs of the body. (Ask participants to name the six classes of nutrients - proteins, carbohydrates, fats, vitamins, minerals, water - and list these on newsprint.)
- The nutrients needed by healthy individuals are usually available in foods though no natural food, by itself, has all the nutrients needed for adequate growth and good health.
- Food is culturally defined and usually influenced by social and cultural factors. (For example, insects and dogs are considered food sources in many countries, but not in the U.S.).
- During this session we are going to look at some basic nutrition concepts and how we can make the most of locally available foods to ensure proper nutrition.

Step 2 (10 min.)

Assigning Tasks for the Market Visit

Explain to participants that they will visit the local market for the next one to two hours during which time they will talk to the vendors, examine the various categories and kinds of available foods, and purchase several food items to bring back to the training site.

Ask participants to divide into pairs or triads for the visit. If local language capability is required, divide the group so that a participant with strong language skills is present in each triad, or ask host country staff members (e.g. language instructors) to accompany the group during the visit.

Give participants money for purchasing their food items and assign each triad one to three specific traditional foods to purchase for cooking later in the session. Explain that they should find and buy these commonly used foods as well as other foods they see during the foray. (Refer to Trainer Note at the beginning of the session). For each food item purchased they should:

- learn and record the local name.
- record the cost, availability, and how it is sold (by weight, volume, etc.).
- try to ascertain how and when it is prepared and used in the local diet.

Ask participants if they have any questions or other points they would like to add to the task assignment. Tell the group when they should be back at the training site.

Trainer Note

If host country staff go with the groups to the market, explain to them beforehand that the participants should do as much of the talking and purchasing as possible. The staff member serves only as a resource not a guide.

Step 3 (1-2 hours)

The Market Visit

Have participants visit the market and complete the task.

As each triad returns, ask them to sit together and be prepared to present their purchases to the large group.

Trainer Note

Before the participants return from their market visit, label three sheets of newsprint with the names of the three food groups. Spread these out on the floor and arrange the participants chairs in a circle around them.

Step 4 (30 min)

Identifying and Categorizing Local Foods

When all the participants are reconvened, ask a spokesperson from each group to take a minute or so to share impressions of the marketplace and summarize the experience and interaction with the people who work there.

Afterwards, explain to the group that they are going to take the foods they purchased in the market and categorize them into three groups. Point out the three sheets of newsprint (see Trainer Note below), each one labeled with the name of a food group. Demonstrate which foods belong in which group by selecting from the assortment one or two examples of an energy food, a body-building food, and a protective food.

Explain to the group that as each triad reports on their purchases, they should place each of their foods on the newsprint in the appropriate group. For their reports, ask participants to give the following information.

- the local name of the food.
- the cost, availability and how it's sold.
- what it's used for, how it's cooked, and any other relevant data.

As the group presents their foods, write the English name and local name on the board and ask participants to write down the information in their notebooks for future reference. Also ask the participants if any of the foods appear misplaced and if so, to say how and move it to the appropriate group.

Trainer Note

For Steps 4 and 5, you should select the system of food categorization used in the host country and/or recommended by the MOH. Be sure you know how local foods are categorized within it. Handout 29A suggest the categories of "energy foods", "bodybuilding foods", and "protective foods", but other categorizations, which for example, separate the staple from the other energy foods are also acceptable. Do not use schemes with more than four food groups as these get confusing. Whichever system you choose, be certain it is based in nutritional science.

Step 5 (15 min)

Analyzing the Three Food Groups

Ask participants to look over the 3 groups of food in the middle of the room and consider any experience they've had preparing and eating the traditional foods. Conduct a discussion around the following questions:

- What do each of the food groups do for the body?
- What is meant by a "balanced diet"?
- What foods in each of the areas on the floor are more nutritious than others in their same group? How can you tell?
- Is each group well represented in the local diet? (If some type of food was purchased by nearly everyone, discuss why this was so. If some type of food is notably missing from their purchases, discuss why this might be so.)
- Which foods would be particularly good for pregnant and lactating women? How accessible are these foods?
- What foods are used for weaning?
- What conclusions can be drawn from seasonality and cost of foods as they related to the three food groups and nutritional status?

Trainer Note

For information on the nutritional needs of pregnant and lactating women refer to the Technical Health Training Manual, Session 32 (Normal Pregnancy and Prenatal Care).

If any of types food happen to be wilting, or beginning to spoil, discuss the problems with storage that people may have due to lack of refrigeration, market facilities, food transport, distribution, and so forth.

BREAK 10 MINUTES

Step 6 (20 min)

Demonstrating Traditional Meals and Complementary Proteins

Based on their experience eating traditional meals during their stay in the country ask several members of the group to demonstrate how some of the foods in the room are combined to form traditional meals. If possible, have a host country staff member present to comment on the participants combinations, show other traditional meals, and demonstrate a typical daily diet.

Have the group analyze the meals for:

- variety (all three food groups)
- adequate mixture of food groups (all three groups represented in sufficiently nutritious amounts).

Also, have the group discuss the local eating and feeding practices and describe how these practices may vary according to sex, age, or other factors.

Ask the pre-selected participant to give the short lecturette on complementary proteins using the same traditional foods to illustrate the concept. Ask him or her to show examples of how the culture either already uses complementary combinations or could make some adjustments to enhance the nutrient value of the meal.

Distribute Handout 29A (Three Main Food Groups), Handout 29B (Complementary Vegetable Proteins), and Handout 29C (Vocabulary List of Local Foods and Cooking Terms) as reference material for participants.

Trainer Note

Most diets in the developing world are based on complementary proteins, often times grain-legume combinations. Be sure the group understands how this theory is already practiced in the host culture.

During discussion make the point that grain-legume combinations are usually significantly cheaper sources of protein than meats, poultry, and animal products. Demonstrate to the group how to combine grains and legumes in sufficient proportions to get the optimal protein. See Handout 29B (Complementary Vegetable Proteins) for approximate proportions.

Step 7 (25 min.)

Relating the Traditional Diet and Nutrition

After the demonstrations and discussion on traditional food combinations and complementary proteins, help the group draw some conclusions and apply what they have learned about the relationship between the local diet and the nutritional status of the community. Ask participants to address these questions:

- Why do you think these food items constitute the traditional meal? Is it because of their availability, cost or habit?
- What are your general impressions about the local diet? What might be some positive and negative aspects of the diet?
- From what you have learned about the nutritive value of the traditional meal, what could make it more nutritious using foods that are available and affordable. How could you find out if these suggestions are culturally acceptable.
- How often will you prepare a meal of this sort? Why? Why not?
- What are some possible health education messages for the local community regarding balanced diets and nutrient-rich foods?

Trainer Note

If time allows, briefly demonstrate the use of a flannelboard (or other visual aides) for teaching about food groups and balanced meals to mothers and children. See Chapter 25, pages 39-44, of Helping Health Workers Learn for ideas.

Step 8 (2 hours)

Preparing a Traditional Meal

End the session by having the group prepare and eat a traditional meal using the foods they purchased in the market. Distribute Handout 29D (Recipes for Traditional Meals) and ask participants to decide which of the dishes they want to try. Have them make their selections, divide into small work groups and begin the food preparation.

As the activity precedes, ask participants to circulate around the cooking area to observe the other dishes being prepared. When appropriate, call the groups together to demonstrate or explain aspects of cooking and food processing which may be new and unfamiliar to the group.

When the dishes are ready to eat, call in any invited guests and ask someone in the group to demonstrate local serving and eating protocol. During the meal, ask participants to informally describe their dishes to interested guests. At the end, have the group clean-up the cooking area.

Trainer Note

This type of activity not only provides a pleasant change of pace in the training program; it also enable participants to acquire skills which will later help them gain credibility with the women in their communities.

Ideally, the cooking site and entire cooking process should simulate the local way of doing things. Activities would include: using only available utensils and containers; peeling, cutting, chopping, and tasting using local methods; and preparing and managing a fire.

If the group makes several different kinds of dishes, discuss each one in terms of 1) when it is usually eaten during the day or week, 2) if it is eaten alone or with some other food, and 3) its relative cost. Be sure the group understands which food(s) comprise the everyday traditional diet of the poorer members of the community.

Ask host country staff members to assist you as "resource cooks" during the preparation. Above all, try to keep the climate relaxed and fun.

If possible, invite other trainees, training staff, Peace Corps staff and/or local agency representatives to be guests at the meal.

Session 29, Handout 29A: Three main food groups

Group I: Body Building (Protein) Foods

This group contains foods which provide a high percentage of protein important in building, maintaining, and repairing body tissue. Although there are different types of proteins, all are made up of small molecules called amino acids. It is these individual amino acids which are required by the body. This group includes: beef, lamb, chicken, fish, eggs, milk, cheese, peanuts, soybeans, black eyed and other beans, peas, legumes, crabs, snail, and shrimp.

Group II: Energy (Carbohydrate) Foods

This group provides calories to the body through the consumption of foods which contain either high amounts of carbohydrates and/or fats. Carbohydrates make up the chief source of energy for the body, and are the least expensive form of energy-providing food. Fats are important because of their high energy potential and their role in absorbing certain vitamins. Fats also help to make foods tastier and provide a feeling of fullness. Some of the common food items found in this

group are: bread, plaintain, corn, rice, sorghum, millet, cassava, yams, butter, coconut, palm oil, sesame seed oil, and peanut oil.

Group III: Protective (Vitamin/Mineral) Foods

These foods, while not being very high in proteins, carbohydrates or fats, do provide important quantities of vitamins and minerals needed to protect the body against malfunctioning and to help ensure proper metabolism. Vitamins and minerals (such as calcium, phosphorous) are important elements in maintaining resistance against illness. Since vitamins are often lost during cooking, care should be taken to not overcook vegetables. Protective foods consist mainly of fruits and vegetables, including: mango, orange, papaya, tomato, onion, sweet peppers, carrot, eggplant, grapefruit, cabbage, avocado, pineapple, cucumber, okra, spinach and other green leafy vegetables.

(Adapted From: Technical Health Training Manual [Draft], Peace Corps.)

Session 29, Handout 29B: Complementary vegetable proteins

Proteins come in many forms; some more useable by the body than others. Animal products, such as meat, eggs and milk provide exactly the components we need in the right amounts. Cereals, legumes, seeds and nuts are vegetable proteins and when appropriately combined, offer the same proportion of needed components. Therefore, mixing specific vegetable proteins is necessary to obtain adequate levels of protein. The following mixtures of proteins are complementary; meaning that when combined in sufficient proportions, they provide an adequate measure of protein (It should be noted that these combinations must be consumed together in the same meal to ensure adequate protein intake.).

1. GRAINS + LEGUMES (Approx. 1 1/3 cups grain to 1/2 cup legumes)
2. GRAINS + ANIMAL PRODUCTS
3. SEEDS AND LEGUMES (Approx. 1/2 cup seeds to 1/3 cup legumes)

GRAINS	SEEDS
Examples:	Examples:
millet	sesame seed
rice	sunflower seed
corn	pumpkin seed
wheat	
semolina	

ANIMAL PRODUCTS	LEGUMES
Examples:	Examples:
fish	groundout
eggs	chick pea
milk	lentils
chicken	cow pea
beef	kidney beans
lamb	soybeans
pork	
cheese	

Dark green leaves are another source of vegetable proteins and their use should be encouraged.

(Adapted from: Lappe', Diet for a Small Planet.)

Session 30: Methods for nutritional assessment

Session 30, Handout 30A: How do you measure malnutrition?

Session 30, Handout 30B: Road to health chart

Session 30, Handout 30C: Anthropometric measures recording sheet

Session 30, Trainer Attachment 30A: Kwashiorkor

Session 30, Trainer Attachment 30B: Marasmus

Session 30, Trainer Attachment 30C: Detecting anemia and vitamin a deficiency

Session 30, Trainer Attachment 30D: Comparison of anthropometric measures

Session 30, Trainer Attachment 30E: Guidelines for interpreting nutrition surveillance data

Session 30, Trainer Attachment 30F: Examples of information to be recorded on a growth chart

TOTAL TIME: 4 hours

OVERVIEW

Malnutrition can be defined as that state of nutrition caused by a diet that is inadequate, imbalanced or not effectively utilized by the body. Many diseases and deaths which appear to be

from infections are actually preconditioned by malnutrition. To prevent severe malnutrition, recognition of the early stages in "at risk" children is important.

In this session, participants use pictures or slides to identify "symptoms" of malnutrition as well as the social indicators of "at risk" children.

Later the group discusses growth measurement as a way of assessing children's nutritional status. Participants practice weighing and measuring children and using and interpreting growth charts.

OBJECTIVES

- To recognize the signs and symptoms of malnourished and nutritionally deficient children. (Steps 1, 2)
- To identify nutritionally "at risk" children. (Step 1-4, 5)
- To use and interpret the Road to Health Chart. (Steps 4, 5)
- To use and interpret anthropometric measures for identification of "at risk" children. (Steps 6, 7)

RESOURCES

- Pediatric Priorities in the Developing World (Chapter 9).
- Nutrition for Developing Countries (Chapter 2)

Handouts:

- 30A How do you Measure Malnutrition?
- 30B Road to Health Growth Chart
- 30C Anthropometric Measures Recording Sheet

Trainer Attachments:

- 30A Kwashiorkor
- 30B Marasmus
- 30C Detecting Anemia and Vitamin A Deficiency
- 30D Comparison of Anthropometric Measures
- 30E Guidelines for Interpreting Nutrition Surveillance Data
- 30F Example of Information to be Recorded on Growth Charts

MATERIALS

Slides or pictures of malnourished children, slide projector, newprint, markers, local equipment used for weighing and measuring infants and children, local forms used to record individual measurement (growth) data.

PROCEDURE

Trainer Note

Before the session make a point of reviewing all the Trainer Attachments, particularly for the preparation of the presentation in Step 1. Also, learn as much as possible about the prevalent nutritional deficiencies in your country and be prepared to discuss them thoroughly in this first step. Make sure the slide show or visual aid presentation you have prepared for Step 1 allows

participants the opportunity to see and identify specific signs and symptoms of various kinds and stages of malnutrition and nutritional deficiencies that are common in your country.

Step 6 in this session is designed to give participants hands-on practice in assessing children's nutritional status. If possible, arrange for participants to do the practice in an actual under-fives clinic. If this is impossible, you will need to do the following to adequately prepare the training center:

- assemble and become familiar with all the measuring tools that are used in the host country to assess children's nutritional status (i.e., scales, measuring boards, arm circumference bands)
- locate and make arrangements to bring in several parents and their infants and children under-five to participate in Step 6
- arrange for a local person skilled in doing nutritional assessments to be present to assist, train and/or observe the participants during the practice. Have the person also act as a translator if necessary.

Step 1 (20 min)

Recognizing Malnutrition

Using pictures or slides, ask the participants to identify, name, and discuss the clinical signs of the various forms of malnutrition.

Conclude this step by stating that while the group has just reviewed pictures that represent various signs of severe malnutrition, the primary focus of the session is to provide participants with the necessary skills and knowledge to identify children at risk of developing severe forms of malnutrition.

Trainer Note

Four of the most prevalent forms of malnutrition and nutritional deficiencies for which you should obtain slides or pictures are; Kwashiorkor, Marasmus, Anemia and Vitamin A deficiency. If pictures are not available, enlarge the ones provided in Trainer Attachments 30A-C using the methods described in Session 24 (Selecting and Using Visual Aids).

Trainer Attachments 30A-C have been provided for your reference and as aids during the discussion in Step 1. Be sure to stress the major signs of each of the nutritional deficiencies and briefly go over the recommended dietary treatment.

You may want to distribute these attachments as handouts for the participants' reference when they are in their communities.

During the discussion, make sure participants understand that when assessing a child for signs of malnutrition, it is best to start from the head and work downward.

Step 2 (25 min)

Identifying High Risk Children

Introduce this step by stating that the main causes of malnutrition can be found by examining the social, economic and health status of high-risk groups. High-risk groups are usually children between the ages of six months and three years, and women who are pregnant or lactating.

Ask the participants to brainstorm a list of social and physical signs that they could use to identify children at high risk. Tell them that recognizing these factors will help in the development of plans for preventing malnutrition. Ask the group to identify which of the risk factors from their list may be most significant in their communities.

Trainer Note

The following indicators which can be used to identify "at risk" children should be mentioned and recorded on newsprint:

- Maternal weight below 43.5 kg.
- All birth orders over seven - Breakdown of marriage or death of either parent
- More than four sibling deaths
- Birth weights below 2.4 kg. for males and 2.3 kg. for females
- Failure to gain 0.5 kg. a month in the first three months of life and 0.25 kg. in the second three months of life
- Breast infections and difficulties in breast-feeding
- An episode of measles, whooping cough and severe repeated diarrhea in the early months of life.

For specific details concerning these factors, please refer to See How They Grow (Chapter 9) or Pediatric Priorities in the Developing World (Chapter 9). If diarrheal diseases are prevalent in the local communities, be sure to include Sessions 39-43 in your training. These sessions deal with diarrheal disease control and Oral Rehydration Therapy.

Step 3 (35 min)

Assessing Nutritional Status

Distribute Handout 30A (How do you Measure Malnutrition?). Go through the handout with the group and elaborate on the measures discussed there. Use Trainer Attachment 30D (Comparison of Anthropometric Measures) to discuss some of the limits of) and distinctions between, the measures and to cite the advantages and disadvantages of having several different measures with which to assess a child's nutritional status.

During this discussion, show and demonstrate the different measuring devices and techniques by measuring several of the participants. Preferably measure persons of different ethnic groups and sexes to show the variation in measurements and have the group interpret the results according to indices given. Use Trainer Attachment 30E (Guidelines for Interpreting Nutrition Surveillance Data) to explain how to interpret the measures.

Trainer Note

When discussing age for weight, briefly mention various ways that the health worker can determine a child's age. Several methods that can be used are:

- developing a local events calendar - counting the number of teeth the child has
- noting other developmental characteristics to estimate age
- birth certificates (usually not available).

Step 4 (20 min)

Introducing the Growth Chart

Distribute a blank copy of Handout 30B (Road to Health Chart) to all the participants. As you are passing out this chart, tell the participants that measuring a child's growth is one way of measuring his or her health and the quality of his or her nutrition. Since growth or health status is not static, measuring needs to be a continual process and systematically recorded in order to permit the health worker or parent to understand the child's health status and to detect early signs of growth failure and hence high mortality risk.

Explain the chart to the participants by stating:

- The upper line on the chart shows the weight of well-fed children.
- The rawer line indicates the area below which a child weighs less than they should for their age.
- The space between the line is the road to health.
- A child's growth curve should always be rising, if it isn't, this indicates that the child is in danger no matter where the child is on the chart.
- A child's age in months is written up the side of the chart.

Next, ask the participants to review the chart and to list the different purposes that it serves. Ask for a volunteer to write their statements on newsprint.

Trainer Note

Several purposes the chart serves include:

- keeping pertinent and concise medical records on children during critical development stages
- encouraging mothers' ongoing involvement with an Under-Fives' clinic or contact with the community health worker
- providing a quick visual means of monitoring a child's medical history for untrained workers
- charting a child's age and appropriate times for immunizations
- having a record of the health history for different health personnel if the child moves.

The Growth Chart that participants work with here should be the one that is used by the host country.

Step 5 (40 min.)

Using Growth Charts to Interpret Children's Health Status

Have the participants form several small working groups and distribute the handout developed from Trainer Attachment 30F (Examples of Information to be Recorded on a Growth Chart) to each group. Ask them to spend the next 15 minutes filling in the growth charts with the information from Trainer Attachment 30F and answer the questions that are attached to each form. Ask them to prepare a brief summary of their findings.

After 15 minutes reconvene the groups and have them present their assessment of the child's health and any nutritional recommendations they would give to the mother.

After each small group has finished with their presentation have the other participants evaluate the assessment and state whether they agree or disagree with the diagnosis and why.

At the end of the presentations, ask the group to discuss any difficulties they had in using the chart and to identify the benefits and drawbacks to using it as an assessment tool. Be sure the group understands the relationship between growth and nutrition.

Trainer Note

Use Trainer Attachment 30F as a guide for assembling information that the participants should record on the chart.

Some of the points that should be discussed concerning the use and importance of the Road to Health chart are:

- It is difficult to obtain the correct age from the mother and accurately chart weight.
- Individuals become so involved in the actual charting that they forget to analyze the data or discuss the child's progress with the mother.
- Host Country Nationals feel that standards used in developing the growth lines are not appropriate for their population.
- If a child is growing well he or she is probably healthy and adequately nourished. Months before a child has obvious signs of malnutrition, he or she will have stopped growing.
- Growth is measured in several ways and baby weight is the simplest.

20 Minute Break

Step 6 (60 min.)

Assessing and Interpreting Nutritional Status

Have the participants form small groups of two or three persons each and distribute Handout 30C (Anthropometric Measures Recording Sheet). Before the small groups begin measuring the children, go over the handout with them and stress the importance of having each person record the measurements immediately as it is easy to forget and may be tempting to change if it doesn't

agree with other group members' measurement results. Tell them there will be a chance to discuss measuring variation and inter-rater reliability in Step 7.

Assign specific groups to the areas where the weighing scales or balances, measuring boards or and arm circumference types or bracelets are located. Have groups take turns weighing children (or each other), measuring their height/length, measuring their arm circumference and talking with parents to establish the children's ages and general health history.

As facilitator be sure that things are going smoothly and help any participants who are having difficulties. (You may wish to have several host country training staff on hand to help with this step if there are large numbers of children present.)

When groups have finished measuring and recording the information on Handout 30C (Anthropometric Measures Recording Sheet), have them spend a few minutes going over their individual measurements with each other. Thank the community members again for their help in the training program.

Trainer Note

This step will vary slightly depending on whether the trainer was able to arrange for local infants and children to come in to be measured or preferably to visit an Under-Fives Clinic. If children are coming in, the trainer should explain to the group that this is a real opportunity to do some nutrition counseling. When the families arrive, the trainer should welcome them and thank them for helping the training effort. Explain the purpose of the measuring tasks and what procedures will follow. Try not to have any infant or child deluged by participants or measured by more than two small groups using the same techniques. Depending on the skills and knowledge of the participant and with permission of the parents, you may wish to have participants assess children for other clinical signs and symptoms, (e.g. vitamin A deficiency, anemia, etc.)

If children will not be measured in this step, have participants measure each other or dolls of varying sizes, but be sure to emphasize the great differences between measuring a doll and an 18 month old child who is frightened and squirming.

If time permits you may also wish to have participants consider the accuracy of different local measuring tools and how they might construct some of these devices themselves in their sites.

Be sure to stress that one measurement of a child's weight does not provide the information needed to accurately assess a child's nutritional health status. To have a clear picture/understanding of where the child falls on its Road to Health, repeated measures taken at regular intervals (i.e. one month apart in the first six months to year of life) are necessary. Therefore, parents should be encouraged to bring their children to a weighing session on a regular basis and the graph of the child's health that is developing should be cautiously interpreted and carefully and clearly explained.

Step 7 (20 min)

Group Discussion on Measuring Children

Reconvene the group and have each small group report on their assessments for the various children they measured. Have a participant record these on newsprint and compare the variations in measurements within the small groups with the variations among the small groups. Have the

groups discuss any difficulties they may have had in doing the anthropometry. Have them also discuss any similarities or differences in information gained about the children and in their perceptions of the children and families. They should also briefly discuss the problems encountered and identify any additional information or skills they need.

End the session by asking each participant to name a skill or attitude needed for conducting complete and accurate nutritional assessments.

Trainer Note

You may choose to increase the time in this step and discuss other important factors which contribute to the intellectual and emotional growth of the child as well as his or her physical growth. Session 34 in Module 5 of the Technical Health Training Manual, provides information on the characteristics of a healthy newborn and the normal stages of development the baby passes through from birth to two years of age. If appropriate discuss and distribute some of the handouts from this session or time permitting cover this session in entirety.

Session 30, Handout 30A: How do you measure malnutrition?

How to measure weight-for-length

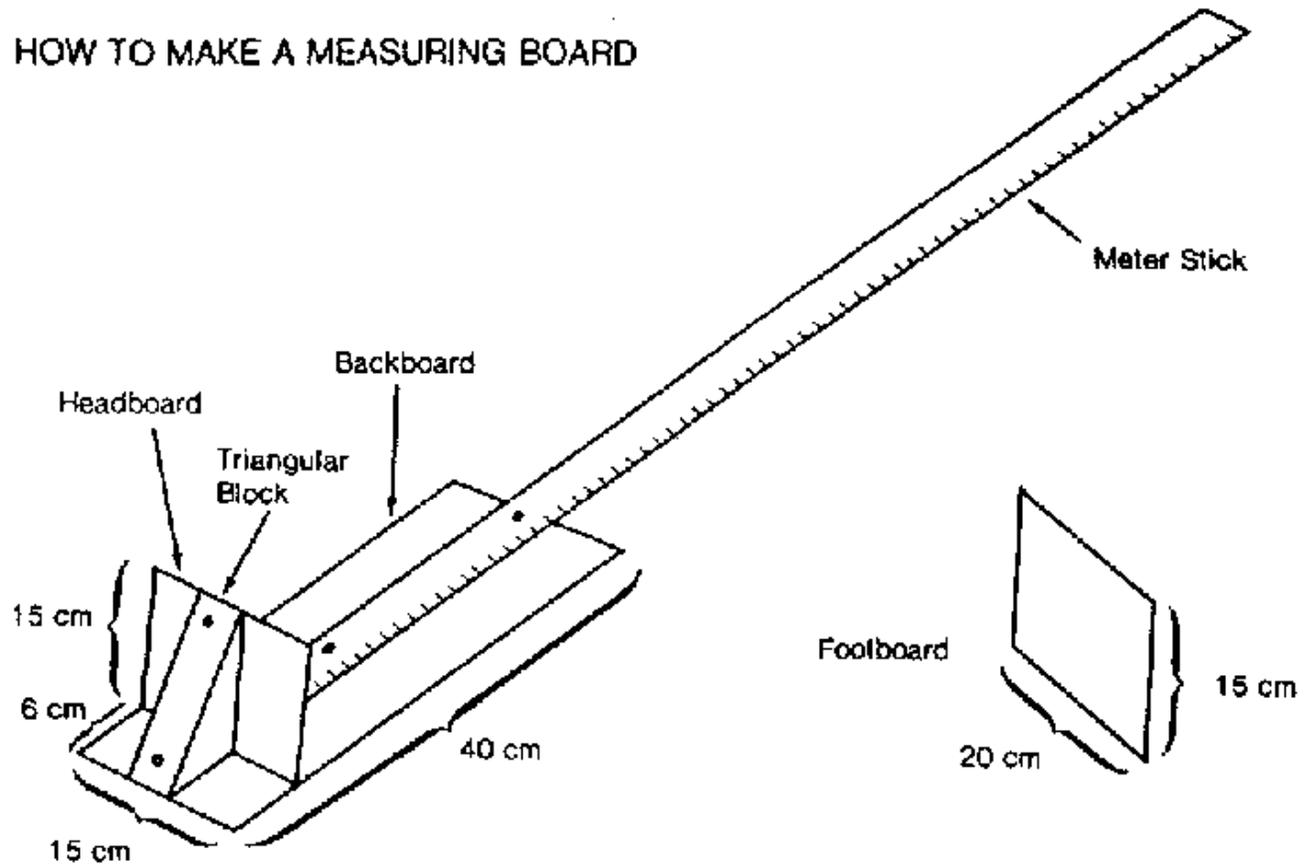
How to measure weight-for-age

How to measure arm circumference

How to measure weight-for-length

HOW TO MAKE A MEASURING BOARD

HOW TO MAKE A MEASURING BOARD



Make a measuring board

You can make a measuring board like this:

1. Buy a meter-long measuring stick at a bookstore or hardware store.
2. Get a piece of plywood 1/2 cm to 1 cm thick. Cut it in 3 pieces:
 - 15 cm x 15 cm (Headboard)
 - 15 cm x 40 cm (Backboard)
 - 15 cm x 20 cm (Footboard)
3. From another piece of wood, about 5 cm thick, cut a triangular block 15 cm x 6 cm.
4. Attach the meter stick, backboard, triangular block, and headboard as shown in the drawing. Use small screws. (The footboard stays separate and is not attached to the other pieces.)
5. Since the backboard will be rough (because of the meter stick and the screws), you can cover the backboard with a cloth, to make the children comfortable.

Measure the child

Measure any child who fits on the measuring board, no matter how old he is. Put the measuring board on the ground. Lay the child on it with his back on the backboard, and his head against the headboard. Ask your helper to hold the child's head and keep his body straight. Use one hand to

press on the child's knees and make his legs straight. Use your other hand to push the footboard against his feet until it touches his heels. Hold the footboard in place while your helper lifts the child off the board. Read the child's length on the meter stick and write it on your list.

Weigh the child

A small scale is best, so you can carry it with you and weigh each child at home. You can order a small hanging scale from this address:

CMS Weighing Equipment Ltd.
 18 Camden High Street
 London NW1 OJH
 England

If you must use a large scale that is too big to carry, leave your scale and measuring board at one house. After visiting each family, take the children to that house to measure and weigh them.

Which children are MALNOURISHED?

For each child, you must know his weight and also the weight he should have for his length. If he weighs too little for his length, he is MALNOURISHED. Look at the "Weight-for-Length List" on the next page.

WEIGHT FOR LENGTH (Supine) FOR BOTH BOYS AND GIRLS

Length	Median	Percents of Median			
		85%	80%	75%	70%
49.0 cm	3.2 kg	2.7 kg	2.6 kg	2.4 kg	2.3 kg
49.5	3.3	2.8	2.6	2.5	2.3
50.0	3.4	2.9	2.7	2.5	2.4
50.5	3.4	2.9	2.7	2.6	2.4
51.0	3.5	3.0	2.8	2.6	2.5
51.5	3.8	3.1	2.9	2.7	2.5
52.0	3.7	3.1	3.0	2.8	2.6
52.5	3.8	3.2	3.0	2.8	2.6
53.0	3.9	3.3	3.1	2.9	2.7
53.5	4.0	3.4	3.2	3.0	2.8

54.0	4.1	3.5	3.3	3.1	2.9
54.5	4.2	3.6	3.4	3.2	2.9
55.0	4.3	3.7	3.5	3.2	3.0
55.5	4.4	3.8	3.5	3.3	3.1
56.0	4.6	3.9	3.6	3.4	3.2
56.5	4.7	4.0	3.7	3.5	3.3
57.0	4.8	4.1	3.8	3.6	3.4
57.5	4.9	4.2	3.9	3.7	3.4
58.0	5.1	4.3	4.0	3.8	3.5
58.5	5.2	4.4	4.2	3.9	3.6
59.0	5.3	4.5	4.3	4.0	3.7
59.5	5.5	4.6	4.4	4.1	3.8
60.0	5.6	4.8	4.5	4.2	3.9
60.5	5.7	4.9	4.6	4.3	4.0
61.0	5.9	5.0	4.7	4.4	4.1
61.5	6.0	5.1	4.8	4.5	4.2
62.0	6.2	5.2	4.9	4.6	4.3
62.5	6.3	5.4	5.0	4.7	4.4
63.0	6.5	5.5	5.2	4.8	4.5
63.5	6.6	5.6	5.3	5.0	4.6
64.0	6.7	5.7	5.4	5.1	4.7
64.5	6.9	5.9	5.5	5.2	4.8
65.0	7.0	6.0	5.6	5.3	4.9

65.5	7.2	6.1	5.7	5.4	5.0
66.0	7.3	6.2	5.9	5.5	5.1
66.5	7.5	6.4	6.0	5.6	5.2
67.0	7.6	6.5	6.1	5.7	5.3
67.5	7.8	6.6	6.2	5.8	5.4
68.0	7.9	6.7	6.3	5.9	5.5
68.5	8.0	6.8	6.4	6.0	5.6
69.0	8.2	7.0	6.6	6.1	5.7
69.5	8.3	7.1	6.7	6.2	5.8
70.0	8.5	7.2	6.8	6.3	5.9
70.5	8.6	7.3	6.9	6.4	6.0
71.0	8.7	7.4	7.0	6.5	6.1
71.5	8.9	7.5	7.1	6.6	6.2
72.0	9.0	7.6	7.2	6.7	6.3
72.5	9.1	7.7	7.3	6.8	6.4
73.0	9.2	7.9	7.4	6.9	6.5
73.5	9.4	8.0	7.5	7.0	6.5
74.0	9.5	8.1	7.6	7.1	6.6
74.5	9.6	8.2	7.7	7.2	6.7
75.0	9.7	8.2	7.8	7.3	6.8
75.5	9.8	8.3	7.9	7.4	6.9
76.0	9.9	8.4	7.9	7.4	6.9
76.5	10.0	8.5	8.0	7.5	7.0

77.0	10.1	8.6	8.1	7.6	7.1
77.5	10.2	8.7	8.2	7.7	7.2
78.0	10.4	8.8	8.3	7.8	7.2
78.5	10.5	8.9	8.4	7.8	7.3
79.0	10.6	9.0	8.4	7.9	7.4
79.5	10.7	9.1	8.5	8.0	7.5
80.0	10.8	9.1	8.6	8.1	7.5
80.5	10.9	9.2	8.7	8.1	7.6
81.0	11.0	9.3	8.8	8.2	7.7
81.5	11.1	9.4	8.8	8.3	7.7
82.0	11.2	9.5	8.9	8.4	7.8
82.5	11.3	9.6	9.0	8.4	7.9
83.0	11.4	9.6	9.1	8.5	7.9
83.5	11.5	9.7	9.2	8.6	8.0
84.0	11.5	9.8	9.2	8.7	8.1
84.5	11.6	9.9	9.3	8.7	8.2

DIRECTIONS FOR MEASURING CHILDREN WHO ARE LESS THAN 85 CM IN LENGTH

Step 1. The measuring board is placed horizontally on the ground or on a table.

Step 2. With the help of one or two assistants, place the baby, barefoot and without head covering on the measuring board with the head against the fixed (non-movable) end.

Step 3. An assistant holds the baby's head so that the eyes are pointed straight up and applies gentle traction to bring the top of the child's head into contact with the fixed end of the measuring board.

Step 4. The measurer holds the child's knees together and pushes them down against the tabletop with one hand or forearm, *fully extending the child*. With the other hand, the measurer slides the movable footboard to the child's feet until the heels of both feet touch the footboard.

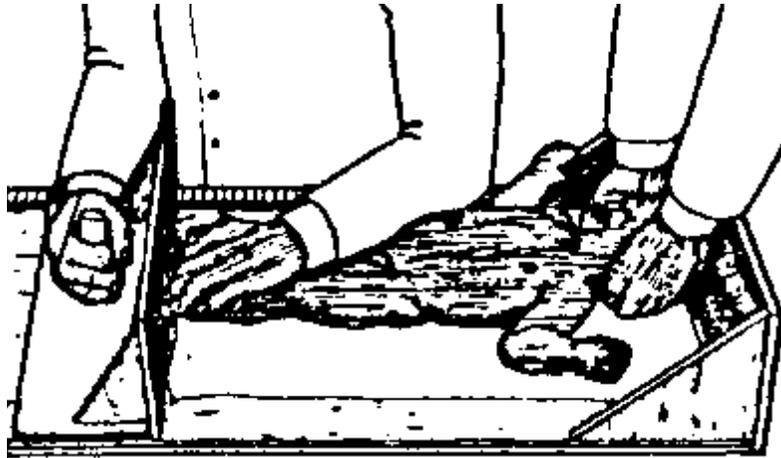
Step 5. The measurer then immediately removes the child's feet from contact with the footboard with one hand (to prevent the child from kicking and moving the footboard) while holding the footboard securely in place with the other hand.

Step 6. The measurer reads the measurement to the nearest 0.5 cm.

Step 7. The recorder then writes the measurement clearly on the form

Step 8. The measurer then looks at the recorded value on the form to be sure that it is correct.

Directions for measuring children who are less than 85 cm in length



NCHS/CDC/WHO Normalized Reference

Prepared By HHS, PHS, CDC, CHPE, Nutrition Division, Atlanta, Georgia 30333

WEIGHT FOR HEIGHT (Stature) FOR BOTH BOYS AND GIRLS

Height	Median	Percents of Median			
		85%	80%	75%	70%
85.0 cm	12.0 kg	10.2 kg	9.6 kg	9.0 kg	8.4 kg
85.5	12.1	10.3	9.7	9.1	8.5
86.0	12.2	10.4	9.8	9.1	8.5
86.5	12.3	10.5	9.8	9.2	8.6
87.0	12.4	10.6	9.9	9.3	8.7
87.5	12.5	10.6	10.0	9.4	8.8
88.0	12.6	10.7	10.1	9.5	8.8

88.5	12.8	10.8	10.2	9.6	8.9
89.0	12.9	10.9	10.3	9.7	9.0
89.5	13.0	11.0	10.4	9.7	9.1
90.0	13.1	11.1	10.5	9.8	9.2
90.5	13.2	11.2	10.6	9.9	9.2
91.0	13.3	11.3	10.7	10.0	9.3
91.5	13.4	11.4	10.8	10.1	9.4
92.0	13.6	11.5	10.8	10.2	9.5
92.5	13.7	11.6	10.9	10.3	9.6
93.0	13.8	11.7	11.0	10.3	9.7
93.5	13.9	11.8	11.1	10.4	9.7
94.0	14.0	11.9	11.2	10.5	9.8
94.5	14.2	12.0	11.3	10.6	9.9
95.0	14.3	12.1	11.4	10.7	10.0
95.5	14.4	12.2	11.5	10.8	10.1
96.0	14.5	12.4	11.6	10.9	10.2
96.5	14.7	12.5	11.7	11.0	10.3
97.0	14.8	12.6	11.8	11.1	10.3
97.5	14.9	12.7	11.9	11.2	10.4
98.0	15.0	12.8	12.0	11.3	10.5
98.5	15.2	12.9	12.1	11.4	10.6
99.0	15.3	13.0	12.2	11.5	10.7
99.5	15.4	13.1	12.3	11.6	10.8

100.0	15.6	13.2	12.4	11.7	10.9
100.5	15.7	13.3	12.8	11.8	11.0
101.0	15.8	13.5	12.7	11.9	11.1
101.5	16.0	13.6	12.8	12.0	11.2
102.0	16.1	13.7	12.9	12.1	11.3
102.5	16.2	13.8	13.0	12.2	11.4
103.0	16.4	13.9	13.1	12.3	11.5
103.5	16.5	14.0	13.2	12.4	11.6
104.0	16.7	14.2	13.3	12.5	11.7
104.5	16.8	14.3	13.4	12.6	11.8
105.0	16.9	14.4	13.6	12.7	11.9
105.5	17.1	14.5	13.7	12.8	12.0
106.0	17.2	14.6	13.8	12.9	12.1
106.5	17.4	14.8	13.9	13.0	12.2
107.0	17.5	14.9	14.0	13.1	12.3
107.5	17.7	15.0	14.1	13.3	12.4
108.0	17.8	15.2	14.3	13.4	12.5
108.5	18.0	15.3	14.4	13.5	12.6
109.0	18.1	15.4	14.5	13.6	12.7
109.5	18.3	15.5	14.6	13.7	12.8
110.0	18.4	15.7	14.8	13.8	12.9
110.5	18.6	15.8	14.9	14.0	13.0
111.0	18.8	16.0	15.0	14.1	13.1

111.5	18.9	16.1	15.1	14.2	13.3
112.0	19.1	16.2	15.3	14.3	13.4
112.5	19.3	16.4	15.4	14.4	13.5
113.0	19.4	16.5	15.5	14.6	13.6
113.5	19.6	16.7	15.7	14.7	13.7
114.0	19.8	16.8	15.8	14.8	13.8
114.5	19.9	16.9	16.0	15.0	14.0
115.0	20.1	17.1	16.1	15.1	14.1
115.5	20.3	17.3	16.2	15.2	14.2
116.0	20.5	17.4	16.4	15.4	14.3
116.5	20.7	17.6	16.5	15.5	14.5
117.0	20.8	17.7	16.7	15.6	14.6
117.5	21.0	17.9	16.8	15.8	14.7
118.0	21.2	18.0	17.0	15.9	14.9
118.5	21.4	18.2	17.1	16.1	15.0
119.0	21.6	18.4	17.3	16.2	15.1
119.5	21.8	18.5	17.4	16.4	15.3
120.0	22.0	18.7	17.6	16.5	15.4
120.5	22.2	18.9	17.8	16.7	15.5
121.0	22.4	19.1	17.9	16.8	15.7
121.5	22.6	19.2	18.1	17.0	15.8
122.0	22.8	19.4	18.3	17.1	16.0
122.5	23.1	19.6	18.4	17.3	16.1

123.0	23.3	19.8	18.6	17.5	16.3
123.5	23.5	20.0	18.8	17.6	16.5
124.0	23.7	20.2	19.0	17.8	16.6
124.5	24.0	20.4	19.2	18.0	16.8
125.0	24.2	20.6	19.4	18.2	16.9
125.5	24.4	20.8	19.6	18.3	17.1
126.0	24.7	21.0	19.7	18.5	17.3
126.5	24.9	21.2	19.9	18.7	17.5
127.0	25.2	21.4	20.1	18.9	17.6
127.5	25.4	21.6	20.4	19.1	17.8
128.0	25.7	21.8	20.6	19.3	18.0
128.5	26.0	22.1	20.8	19.5	18.2
129.0	26.2	22.3	21.0	19.7	18.4
129.5	26.5	22.5	21.2	19.9	18.6
130.0	26.8	22.8	21.4	20.1	18.7

DIRECTIONS FOR MEASURING CHILDREN WHO ARE 85 CM OR MORE IN HEIGHT

Step 1. Place the measuring board in a vertical position on a flat surface.

Step 2. Have the mother (or assistant) remove any footwear or headgear on the child and lead the child to the measuring board.

Step 3. Place the child so that the shoulder blades, buttocks, and heels are touching the vertical surface of the measuring board. The loot must be flat on the floor, slightly apart, legs and back straight, and arms at sides. The shoulders must be relaxed and in contact with the measuring board. The head usually is not in contact with the measuring board. Tell the child to stand "straight and tall" and look straight ahead.

Step 4. One assistant (the recorder) checks that the child stands flat footed with the knees fully extended. The shoulders and buttocks should be in line with the heels.

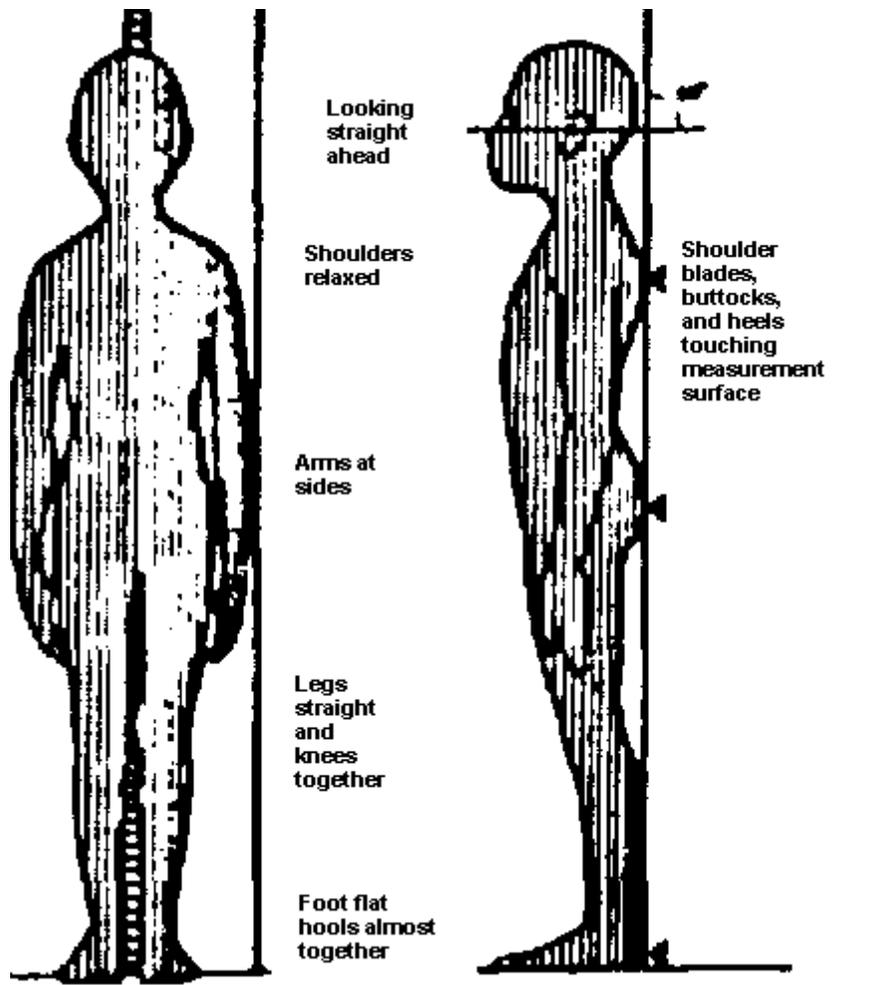
Step 5. The movable headboard is then brought to rest firmly on the crown of the child's head by the measurer while the head is held so that the child's eyes point straight ahead.

Step 6. The measurer reads the measurement to the nearest 0.5 cm.

Step 7. The recorder then writes the measurement clearly on the form.

Step 8. The measurer then looks at the recorded value on the form to be sure that It is correct.

Directions for measuring children who are 85 cm or more in height



NCHS/CDC/WHO Normalized Reference

NOTE: Children who are over 85 cm in height who are too sick to stand may be measured lying down, but 1 cm should be subtracted from the measured length before using this table.

How to measure weight-for-age

Find the child's age

When you are ready to weigh the child, write his birth date on a list. Then figure his age in months.

Weigh the child

It is best to use a small scale, so you can carry it with you and weigh each child at home. You can order a small hanging scale from this address:

CMS Weighing Equipment Ltd.
18 Camden High Street
London NW1 OJH
England

If you must use a large scale that is too big to carry, leave it at one house. After visiting each family, take the children to the scale and weigh them. Write each child's weight beside his age on your list

Which children are MALNOURISHED?

For each child, you must know his weight and also the weight he should have at his age. If he weighs too little, he is MALNOURISHED. Look at the "Weight-for-Age List" on the next page. In the left column, you see the ages, 0-59 months. In the center column, you see that if a child of that age weighs less than a certain number of kilograms, he is MALNOURISHED. (The right column shows the "standard weight" for each age, but you will not need to look at that column.)

WEIGHT-FOR-AGE LIST

Age of the child	If the child weighs less than this amount he is MALNOURISHED	Standard weight for this age
0 months	2.4 kg*	3.2 kg*
1	3.1	4.2
2	3.7	5.0
3	4.3	5.7
4	5.0	6.4
5	5.4	7.0
6	6.0	7.5
7	6.4	8.0
8	6.8	8.5
9	7.2	8.9

10	7.6	9.2
11	7.9	9.6
12	8.1	9.8
13	8.4	10.1
14	8.6	10.4
15	8.8	10.6
16	9.0	10.8
17	9.1	11.0
18	9.2	11.2
19	9.4	11.4
20	9.6	11.5
21	9.8	11.7
22	9.9	11.8
23	10.0	12.0
24	10.2	12.1
25	10.3	12.2
26	10.5	12.4
27	10.6	12.6
28	10.8	12.8
29	10.9	13.0
30	11.0	13.2
31	11.2	13.4
32	11.3	13.6

33	11.4	13.8
34	11.6	14.0
35	11.7	14.2
36	11.8	14.4
37	12.0	14.6
38	12.1	14.7
39	12.2	14.9
40	12.4	15.0
41	12.5	15.2
42	12.6	15.4
43	12.8	15.5
44	12.9	15.7
45	13.0	15.8
46	13.1	16.0
47	13.3	16.2
48	13.4	16.4
49	13.5	16.5
50	13.6	16.6
51	13.8	16.8
52	13.9	17.0
53	14.0	17.1
54	14.1	17.2
55	14.3	17.4

56	14.4	17.5
57	14.5	17.7
58	14.7	17.8
59	14.8	18.0

How to measure arm circumference

Age of the children

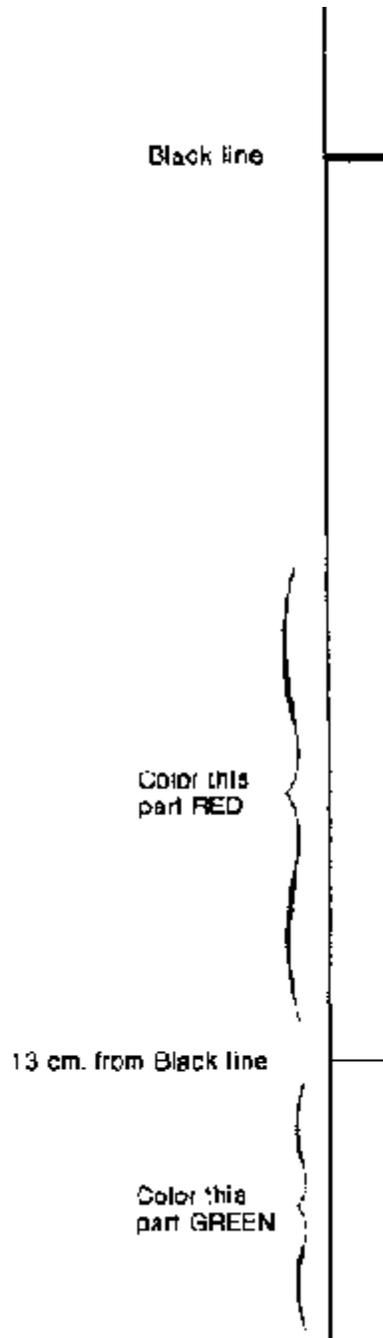
You should measure all children between 1 and 5 years old. If you do not know the exact age of a child, you can guess it:

- If he has 0-3 teeth, he is **too young** to measure
- If he has already lost some baby teeth, he is **too old** to measure
- If he has 4-20 baby teeth, and he hasn't yet lost any teeth, he is the **right age** to measure.

Method # 1: The colored strip

Ask a hospital to give you old X-ray films with clear spaces. Cut out clear strips of film, each 20 centimeters long. Or you can use pieces of strong cord or string. Use marking pens to color the black line, the red part, and the green part. The drawing is measured exactly, so you can use it as a pattern.

The colored strip



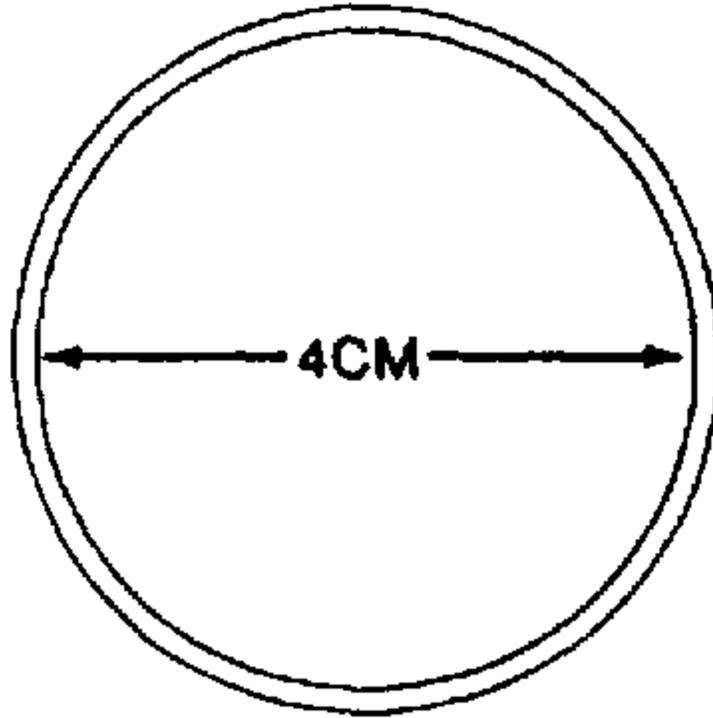
Measure the left arm of the child, half-way between his shoulder and his elbow. Your strip should just fit around the arm. Don't squeeze it.

- If the black line touches the red part of the strip, the child is MALNOURISHED
- If the black line touches the green part of the strip, the child is WELL-NOURISHED

Method #2: The bracelet

Another way of measuring children's arms is with a bracelet. The bracelet must be exactly 4 centimeters in diameter (across the hole). That means it is 13 centimeters in circumference (around the hole).

The bracelet



You might find plastic bracelets in a shop, or you might ask a blacksmith to make some. Be sure the bracelets are the right size. The drawing is measured exactly, so you can use it as a pattern.

Or you can order a package of 10 bracelets from this address:

TALC
30 Guilford Street
London WC1N 1EH
England

Measure the left arm of the child. Push the bracelet up the arm in one straight push. Don't twist it or force it.

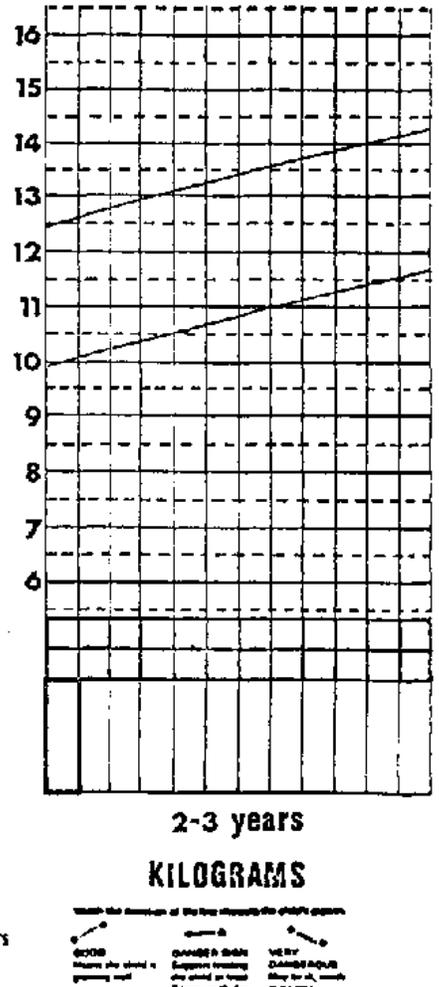
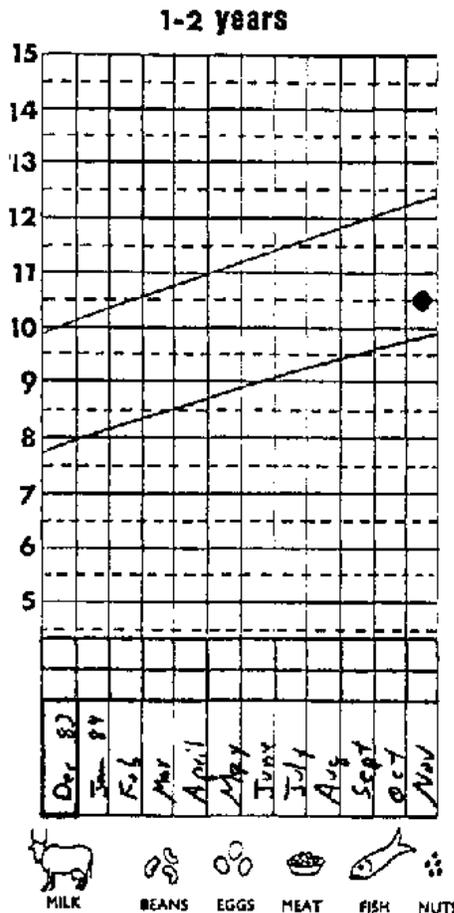
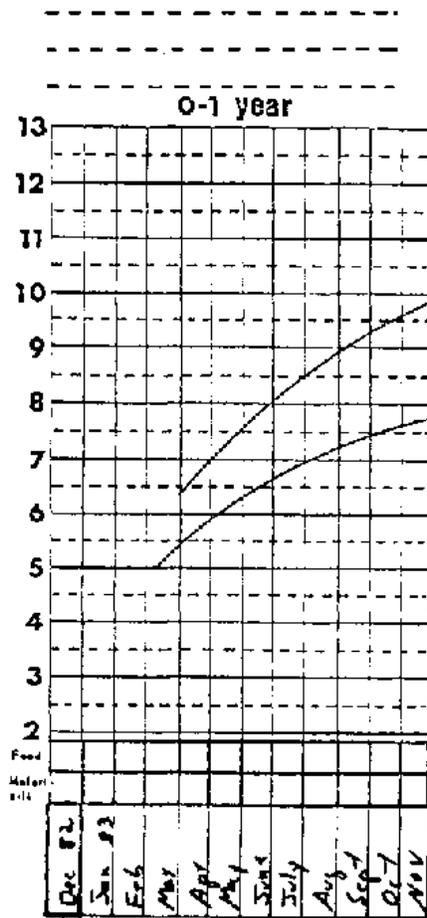
- If the bracelet goes above the elbow, the child is MALNOURISHED
- If the bracelet stops at the elbow, the child is WELL-NOURISHED

(Adapted From: Brow, R. and Brow, L., Finding The Causes of Child Malnutrition, pp. 30-53.)

Session 30, Handout 30B: Road to health chart

Road to health chart

Reasons for special care



Under fives clinic

CLINIC	CHILD'S No.
CHILD'S NAME	Boy/Girl
MOTHER'S NAME	REGISTRATION No.
FATHER'S NAME	REGISTRATION No.
DATE FIRST SEEN	BIRTHDAY
WHERE THE FAMILY LIVE	

ANTI-TUBERCULOSIS IMMUNISATION (BCG)

Date of BCG immunization _____

(BCG can be given immediately after birth)

POLIOMYELITIS IMMUNISATION

Date of first immunisation_____

Date of second immunisation_____

Date of third immunisation_____

WHOOPING COUGH, TETANUS & DIPHTHERIA IMMUNIZATION

Date of first injection_____

(at the age of one month or later)

Date of second injection_____

(one month after the first injection)

Date of third injection_____

(one month after the second injection)

MEASLES IMMUNIZATION

Date of immunisation_____

(at the age of 9 month)

USING A WEIGHT CHART

Ask the child's mother the month and year of his birth. If she does not know these, you will have to use a local events calendar.

Write the month of the child's birth, say March, in all the thick black lined boxes on the child's weight chart. These are the first boxes for each year.

Write the other months in the other boxes.

Put the year (for example '79) opposite each January, and each birth month.

Weigh the child.

Make a dot for the child's weight opposite the month you are in. Make a big dot, about 3 mm. If you are near the beginning of the month, put the dot at the left of the column for that month. If you are in the middle of the month, put the dot in the middle of the column. If you are at the end of the month, put the dot at the right of the column.

The solid lines across the chart are for whole kilograms. The lines with dots are for half kilograms. For example, if your child weighs a little less than 6.5 kg, put your dot a little below the dotted half kilo line for 6.5 kg.

When a child has several dots, pin them up with thick lines to make a growth curve.

Session 30, Handout 30C: Anthropometric measures recording sheet

Small group # _____

Small Group Member 'a Measures			
#1 Child Name	#1	#2	#3
Height/Length (in cm. or inches)			
Weight (in lbs or kilograms and ozs. and gms.)			
Arm circumference (in inches or cm.)			
Age _____			
Other Child Information:			
#2 Child Name	#1	#2	#3
Height/Length (in cm. or inches)			
Weight (in lbs or kilograms and ozs. and gms.)			
Arm circumference (in inches or cm.)			
Age _____			
Other Child Information: _____			

*Note: If more than 2 persons are measured, use the back of this sheet for recording the same information.

Session 30, Trainer Attachment 30A: Kwashiorkor

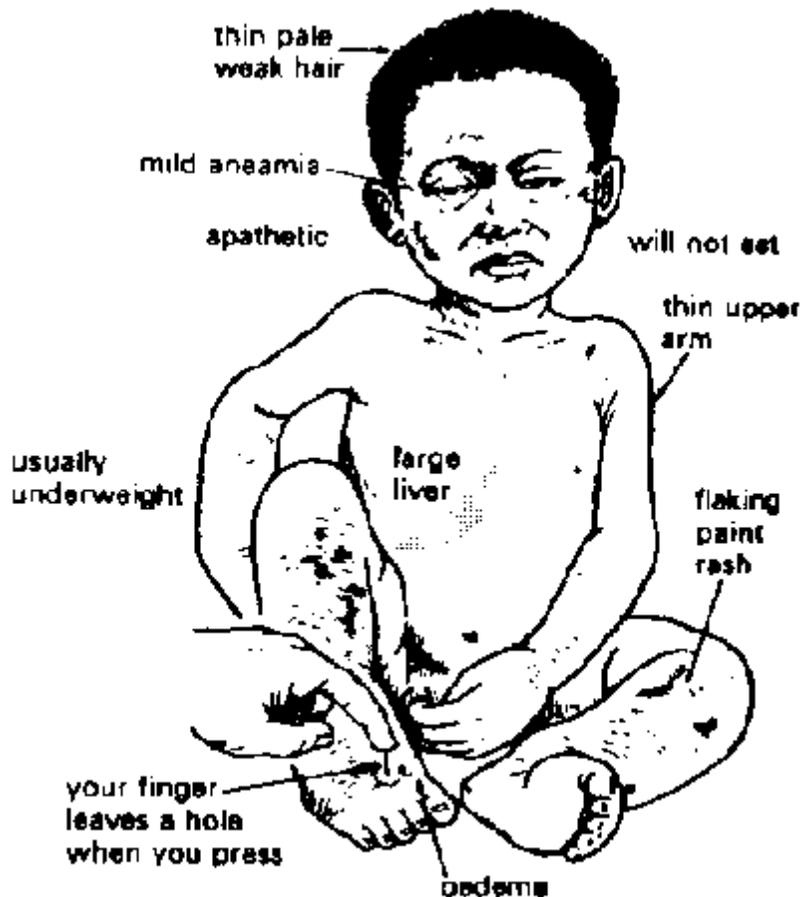
Definition

Kwashiorkor is a state of chronic protein deficiency in a child, usually 1 to 5 years old, who has been wholly or partially weaned without adequate substitution of other foods containing proteins of adequate quality and quantity. The child's diet usually consists mainly of maize, cassava (manioc), plantain, or other predominantly carbohydrate foods. The name is derived from a term used by a tribe in Ghana and is said to mean the sickness an older child gets when the next baby is born, i.e., it commonly results when a pregnancy displaces an older child from the breast.

Signs and symptoms (with reference to dark-skinned Africans).

Beginning with the head: (note Figure 1).

Kwashiorkor



1. The hair is often scanty and discolored and tends to be reddish or greyish, with weak roots (which can be pulled out easily).
2. The face is usually puffy ("moon face"), with oedema under the eyes and cheeks.
3. There is oedema of the hands and legs.
4. The child is short for his age.
5. The skin is smooth and a characteristic dermatosis, consisting of areas of disquamation and pigmentation along with areas of depigmentation, is often present. The skin tends to peel and flake, ulcers may occur over pressure points and deep cracks may be present in skin folds. Severe cases may resemble extensive burns.
6. The pot belly is often filled with worms.
7. The child is not a happy child. He is apathetic, irritable, and cries when strangers interfere with him. He tends to remain aloof and to stay where he is put.

8. His muscles are wasted, but some subcutaneous fat still exists. His arm circumference is small for his age.

9. He has a poor appetite and frequently has diarrhoea and loose stools.

10. The child is usually anaemic. His skin is pale, and the conjunctiva of his eyes are pale.

Of the above signs, the following are especially characteristic:

1. Oedema is present (face, feet and legs, hands, etc.).

2. The muscles are weak and wasted though with preservation of some subcutaneous fat.

3. Skin changes.

4. Growth failure is seen in low height and weight (once the oedema is corrected) for age.

5. There are behavioral changes manifested by misery, apathy, lack of appetite, withdrawal, etc.

TREATMENT or KWASHIORKOR

Severe cases are admitted to the hospital with, if necessary, I.V. drips and navel-gastric feedings. If the child is considerably dehydrated, isotonic solutions of electrolytes with added glucose is recommended by mouth or, if necessary, I.V.

Dietary treatment

Good dietary sources of digestible protein and energy must be administered. This is usually given in the form of a milk formula, consisting of dried low fat (skimmed) milk or whole milk plus carbohydrates (sugars) and fat (vegetable oil seeds). Milk substitutes of vegetable origin, composed of carefully selected proteins to give a good combination of amino acids may also be used. Skim milk alone will not provide sufficient calories and in excessive amounts may cause diarrhea.

The total amount of fluid in the beginning should be about 1150 cc of liquid per day. This is divided up and given 4 or more times per day. The amount is then adjusted according to the observed need of the particular child, depending upon the weight* of the child and the observed losses of fluid in diarrhoea and vomiting.

<u>Note that the formulas below must be made up twice a day to provide the required amount of liquid.</u>

* Maintenance oral fluids are calculated as follows:

100 cc/kg for the 1st 10 kg of weight

50 cc/kg for the 2nd 10 kg

20 cc/kg for kg over 20

For example a 15 kg child would need $10 \times 100 = 1000 + 5 \times 50 = 1250$ cc/day

Examples of formulas:

1. Dried skimmed milk: 20 level teaspoons (5-6 cc volume) of milk powder, 4 level teaspoons of auger (preferably brown auger, or glucose), 6 level teaspoons of edible oil (sesame, cottonseed, maize, soya, sunflower, etc.) and 550 cc of boiled water (about 20 fluid ozs.)
2. Full cream milk powder: 20 level teaspoons of milk powder, 4 level teaspoons of auger, 550 cc of boiled water (about 20 fluid ozs.)
3. Boiled liquid cow's milk: 550 cc (20 fluid ozs.) plus 4 level teaspoons of sugar.
4. Evaporated milk: 1 part milk to 2 parts boiled water make 550 cc (20 fluid ozs.) plus 4 level teaspoons of sugar.

Depending on the condition of the child, feeding is accomplished by means of an intragastric plastic polyethylene tube, a milk drip, or by giving calculated feeds by syringe or spoon every few hours.

A broad spectrum of foods eaten locally should be introduced to the child as soon as he begins recovering. In addition to the digestible, chewable forms of meat, fish, and eggs, good quality vegetable protein should be encouraged if possible. We know that the child is recovering when he looks brighter, is eating with some appetite, and is showing interest in his environment. He will lose his irritability and begin to play. Weight improvement is early; return of normal hair and growth rate are much slower.

Stool should be checked and deworming done as indicated (after the child has passed the acutely ill stage). The dermatosis, if severe, should be treated with oil and carefully protected. Any vitamin deficiencies present should also be treated.

(From: Joseph, F., Protein-Calorie Malnutrition. pp. 9-10.)

Session 30. Trainer Attachment 30B: Marasmus

Definition

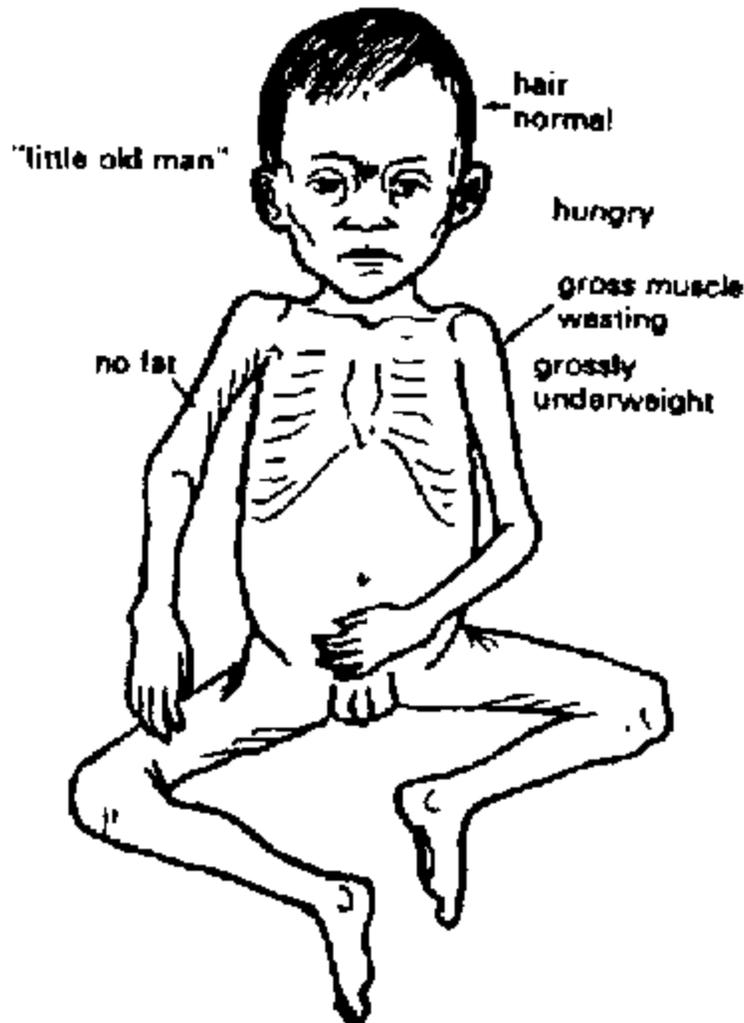
Marasmus is an extreme deficiency of proteins and calories. The marasmic child is a starved child, thin, but often more alert and less indifferent to what goes on around him than is the child with kwashiorkor. Marasmus is seen in children in drought-stricken areas; for example, recently in the Sahel region of the sub-Saharan.

Signs and symptoms

1. There is marked wasting of muscles and subcutaneous fat. (Subcutaneous fat is less affected in kwashiorkor.)
2. It generally occurs before the age of one. However, late marasmus does occur in areas of severe food scarcity.
3. There is growth failure, as in kwashiorkor, but usually more marked.
4. The psychological change in marasmus may be less marked than in kwashiorkor.
5. Sunken eyes give the look of a "little old man."

6. The head seems large as compared to the body, and the face is thin (as compared to the "moonface" of kwashiorkor).
7. The skin can be lifted off like folds, especially in the buttocks area, giving the "skin and bone" appearance (as compared to the oedematous look of kwashiorkor).
8. The hair is usually not changed (unless in a case of kwashiorkor-marasmus combination).
9. There may be signs of dehydration.

Marasmus



Of the signs above, there are 5 which are usually found:

1. Wasting of the child's muscles and the subcutaneous fat
2. Severe growth failure (low body weight, not much or any change in height)
3. Most are very hungry though a few are anorexic. More interest in the environment is usually maintained than in kwashiorkor.

4. The hair is more or less normal

5. There is usually no oedema

TREATMENT OF MARASMUS

1. Dietary

Severe cases should be hospitalized. Basically, treatment is like that of kwashiorkor (see TREATMENT OF KWASHIORKOR). Recovery, however, is a bit slower.

Feeds can be increased if and when the child can eat. Because both calories and proteins are markedly deficient, more carbohydrates and fats are added to the daily diet.

The child may have avitaminoses. Check for signs and symptoms and provide supplemental vitamins if considered necessary.

2. Educational

Education should be provided in the same manner as for kwashiorkor, including the socioeconomic considerations mentioned. However, in the case of regional failure or destruction of crops, the government may have to assume responsibility for providing food and other essential supplies and services.

Marasmus-Kwashiorkor

The two syndromes, kwashiorkor and marasmus, are the extremes of a continuous spectrum since every degree of relative deficiency of protein and calories can be found. The large majority of cases of kwashiorkor shows some loss of subcutaneous fat and tissue wasting as well as the oedema and other signs and symptoms of protein deficiency. They might more properly be referred to as cases of kwashiorkor of the marasmic type or marasmus-kwashiorkor. Treatment and management of such cases follow the same principle which have been described for classical cases of kwashiorkor.

(From: Joseph, F., Protein-Calorie Malnutrition. pp. 25-27.)

Session 30, Trainer Attachment 30C: Detecting anemia and vitamin a deficiency

Anemia

Anemia, the reduction in the concentration of hemoglobin (or red pigment) in the blood, causes varying degrees of debility, which interferes with an individual's ability to carry out daily tasks. Severe anemia during pregnancy is associated with increased rates of maternal morbidity and mortality, as well as higher risk to the fetus. Anemia usually results when the body lacks sufficient stores of iron or folic acid, needed to produce red blood cells. Shortages of these key building blocks can be caused by dietary deficiency and/or by parasitic infections such as malaria or hookworm that involve red blood cell loss. Bacterial infections and hemoglobin disorders (like sickle cell disease) also contribute to the development of anemia.

Infants, and women in their reproductive years, are especially vulnerable to anemia. During the last trimester of pregnancy, iron is transferred to the fetus across the placenta. A child born to an iron-deficient mother will probably have insufficient stores of iron. The rapid rate of growth of children increases their iron requirements. Iron stores may be quickly depleted, even in a child born with adequate iron levels.

In spite of the high prevalence and negative health impact of anemia in developing countries, a simple, reliable, and inexpensive method to detect anemia is not yet available. Although there have been many advances in the development of sophisticated instruments to detect anemia, the cost of these technologies does not permit their widespread use in primary health care programs. In the absence of an affordable detection instrument, health workers must rely on older, less reliable methods.

One way to screen for anemia is to examine the patient for signs of pallor. The inner surface of the lips and the inner side of the lower eyelids are pale, light pink, or white in anemic individuals. If it is difficult to judge degrees of pallor, a person suspected of being anemic can be compared to a healthy person whose normal skin color is as dark or light as that of the person being checked. Also, standard color photographs showing the lips and tongues of healthy and anemic people can be used for direct comparison. The "anemiometer," a strip of paper with three bands of different shades of red, is used to measure mild, moderate, and severe anemia. The health worker holds it up to a person's inner eyelid and matches the color. It should be emphasized that these tests are not very reliable, except in cases of severe anemia.

The other common technologies for detecting anemia-hemoglobin concentration and hematocrit-require laboratory facilities, which may not be available, and a blood sample, which some people may object to giving.

To measure hemoglobin concentration, a measured sample of blood is taken from a finger prick and mixed with a known volume of diluting fluid. The depth of color of the diluted blood is determined in a spectrophotometer or color meter. Some photometers run either on electricity or on current from a car battery. The colorimeter must be calibrated, and a graph and table prepared for the hemoglobin values. Alternately, a comparator can be used. This is a visual method where the test solution is compared with a series of colored glass standards that show the concentration of hemoglobin. Another approach is the Sahli method, in which blood is diluted in an acid solution, converting hemoglobin to acid hematin. The test solution is then matched against a colored glass reference. This method is often used because it does not require expensive instruments, but it is not an accurate way of estimating hemoglobin.

The traditional unit for expressing hemoglobin concentrations is grams per 100 ml, with the following values considered as cut-off points for defining marginal deficiency states: non-pregnant women, 12.0 g/100 ml; pregnant women, 11.0; men, 13.0; children at birth, 13.5; children at one year, 11.5; and children 10-12 years, 11.5. The problem with such standards is that there is no clear-cut dividing line between normal and iron-deficient people. What is normal value for one person may not be for another

The hematocrit, or the packed cell volume measures the volume of red blood cells in a volume of blood. In the microhematocrit method, a blood sample is taken from a finger prick, allowed to flow into a capillary tube, and centrifuged to separate the cells and the plasma. The centrifuge must be driven from a source of electric power. The packed cell volume is found by measuring

the length of the column of red blood cells and expressing this as a percentage of the total length of the whole sample.

Neither laboratory tests nor clinical examination can give a precise determination of the cause of anemia - whether it is due to an iron deficiency other nutrient deficiencies, infection, hemorrhage, or a combination of these. Further blood tests may be needed.

Vitamin A Deficiency

Xerophthalmia is an eye disease that results from vitamin A deficiency and is the primary cause of blindness among children in the developing world. Inadequate vitamin A status can vary from marginal deficiencies without clinical signs, to the presence of early and reversible clinical signs (night blindness, Bitot's spots, and conjunctival xerosis), to severe depletion with advanced and irreversible corneal changes and a high probability of blindness. Children with protein-energy malnutrition, respiratory infections, measles, and/or diarrhea are at especially high risk of developing vitamin A deficiency. Recent research has found that even children with mild xerophthalmia may have a much higher mortality rate than children without apparent deficiency.

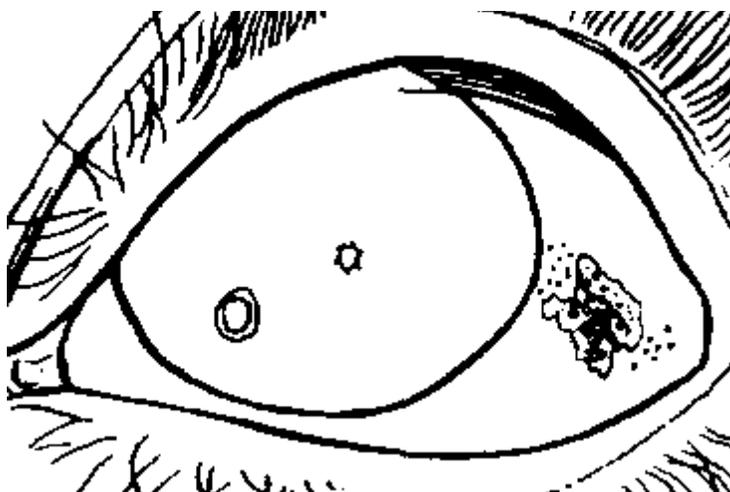
Simple techniques for assessing vitamin A status and xerophthalmia should be part of primary health care programs, especially in areas where vitamin A deficiency is endemic. Because biochemical tests, although accurate, are not always practical, primary health care workers need to be trained to recognize the clinical signs of vitamin A deficiency.

Night blindness is frequently the earliest symptom of vitamin A deficiency and can even occur when biochemical tests indicate that vitamin A status is adequate. Until recently an objective measure of scotopic vision (ability to see in the dark) in preschool age children was very difficult to obtain, because it required the child's cooperation. A study in Indonesia demonstrated that a history of night blindness, elicited from a child's parent or guardian, can be valid evidence of vitamin A deficiency. The key to obtaining this history is the existence of local term(s) for the condition, such as "chicken blindness." Reports from other countries indicate that, in areas where vitamin A deficiency is chronic, local terms usually do exist. However, this technique of history taking may not be valid for cultures without such terms. These findings merit further research, as this is a technique which requires little training and no clinical experience. Even school children could be taught to screen their younger siblings.

The other eye signs associated with vitamin A deficiency can only be recognized by clinical examination. Color photographs and line drawings depicting the changes in the eye, accompanied by brief texts describing the photographs, are the simplest and most commonly used tools. These can be used to train workers, who can carry these photographs and drawings with them, referring to them as they examine a child's eyes (see drawing below left). Film strips, slide shows, and manuals are also available for training and reference.

Another finding of the study in Indonesia that is potentially useful for identifying individuals and groups of people at risk of xerophthalmia is the neighborhood clustering of vitamin A deficiency. This also needs further research in other countries.

Example of diagnostic eye drawing showing foamy Bitot's spot.



(From: PATH, Health Technology Directions. Third Quarter, 1983. pp. 8-9)

Session 30, Trainer Attachment 30D: Comparison of anthropometric measures

Indicator	Advantages	Disadvantages	Comments
1. Weight-For-Age	<ul style="list-style-type: none"> • Good basic indicator, combining acute and chronic malnutrition, for monitoring ongoing programs (125, 136). • Sensitive to small changes (although many variables influence small fluctuations in weight) (82). • Measure is objective and repeatable (82). • Sob tool (scale) is portable and relatively inexpensive. • Weighing is relatively easy for inexperienced health workers to manage, although it does require a literate worker. • Measure is not time 	<ul style="list-style-type: none"> • Not sensitive to a stunted child who is growing well (below but parallel to a normal growth channel) (8, 27) or to the very tall child who may be malnourished (1). • Relies on ago data, which are often subject to error. Age data for children below two years old have been found accurate, or, if in error, easily corrected, but it is difficult to accurately estimate unknown ages for children over two years (76). • Mothers in some countries have objected to hanging their children from the scale during weighing (67). 	<ul style="list-style-type: none"> • Better if used with children 0-2 years because height retardation is less pronounced (125); however, it is a valid indicator through the preschool years.

	consuming.		
2. Length/Height-for-Age	<ul style="list-style-type: none"> • Good indicator of past nutrition problems (125). • Measure is objective, repeatable, and has a low variability (82). • A length and height board can be made locally for a minimum investment, and the boards are easily transported. • Rarely are mothers reluctant to have child measured because of appearance of the board. 	<ul style="list-style-type: none"> • In growth monitoring projects It should be supplemented by another indicator like weight-for-age or weight-for-height because changes in height occur relatively slowly. • Requires two different techniques if programs include all preschoolers: recumbent (lying down) length (children 0-2 years) and standing height (children 3-5 years). • More difficult for unskilled workers to learn to take accurate length/heights than to weigh a child with a simple scale. • Requires two persons to take the measure. • Relies on age data, which are often subject to error. 	
3. Weight-for-Length/Height	<ul style="list-style-type: none"> • Good indicator to distinguish those who are well proportioned (weight/height) from those who are thin (or heavy) for their height (8, 122). • Indicator does not require age data, which are often inaccurate and difficult to obtain. • Measures are objective and repeatable. 	<ul style="list-style-type: none"> • Depending on the cut-off points chosen (see Chapter III), weight-for-height can underestimate malt nutrition by classifying those who are short and thin as normal (102, 106). • Requires taking two measures; therefore, problems of purchasing or making the instruments and transporting them are compounded. • Weighing and measuring height will require more training time and may be too complicated and time consuming for the inexperienced clinic worker to do with frequency. • Some mothers may be 	

		<p>reluctant to have their children weighed.</p> <ul style="list-style-type: none"> • Requires two persons to take length or height measure. 	
4. Arm Circumference	<ul style="list-style-type: none"> • Indicator of severe current malt nutrition (1), whether or not stunting is present (8). • While it may not detect changes as rapidly as weight monitoring, it will indicate changes in nutritional status over a short time. • Measurement is taken with an inexpensive and portable arm tape, which can be made by project personnel. • Quick to use. • Arm tape can be color coded for use by non-literate health workers. • Indicator does not require age data, which can be inaccurate and difficult to obtain. • No known objection by community to this measure. 	<ul style="list-style-type: none"> • Will only identify children with severe malnutrition. It is more difficult to determine who is borderline. • Variability is high on measurement. Field workers need practice taking measurement to do it accurately. Finding the <i>mid</i>-upper arm and placing the tape around the arm without compressing the tissue is difficult. 	<ul style="list-style-type: none"> • Some researchers indicate that measure should be used only with children 1-3 years old (7, 96), although others say it is valid for children 1-5 or 6 years old (106), and that it can be used beginning at 6 months (132).

ANTHROPOMETRIC INDICATORS FOR CHILDREN

Indicator	What Does It Measure?
Weight-for-age	wasting and stunting* combined
Height-for-age	stunting
Weight-for-height	wasting

Arm circumference	wasting
* Wasting which is extreme thinness, effects acute, current malnutrition; stunting, which is retarded skeletal growth reflects chronic long-term malnutrition.	

(From: APHA. Growth Monitoring. 1983. pp. 11-12. and PATH. Health Technology Directions. Third Quarter, 1983. p. 3.)

Session 30, Trainer Attachment 30E: Guidelines for interpreting nutrition surveillance data

Table 1: Weight-for-age

<i>System</i>	<i>Reference Population</i>	<i>Method</i>	<i>Classification</i>
Gomez (46)	Boston	% of median	> 90%: normal
			90-75%: mild malnutrition (grade 1)
			75-61%: moderate malnutrition (grade 2)
			≤ 60%: severe malnutrition (grade 3)
Jelliffe (61)	Boston	% of median	110-90%: normal
			90-81%: mild malnutrition (grade 1)
			80-61%: moderate malnutrition (grades 2 and 3)
			≤ 60%: severe malnutrition (grade 4)
Bengoa (16)	Boston	% of median	Gomez classification with all cases of edema added to the category of severe malnutrition
Kasa Project, India (104)	Boston	% of median	> 65%: not at risk
			≤ 65%: high nutritional risk
WHO (129)	NCHS	Percentile	50th-3rd percentile: normal
			≤ 3rd percentile: malnourished

Tamil Nadu (49)	Indian Council of Medical Research	Absolute weight gain	6-11 mo.: 500 gm/months: normal
			12-35 mo.: 500 gm/3 months: normal
			anything less is inadequate
Candelaria Project Columbia (35)	Boston	% of expected gain	< 85% of expected weight gain shows nutritional risk
Indonesia (20)	Boston	% of median + weight gain	Gomez classification on chart but records kept by weight gain; gaining weight each month: normal: no weight gain: at risk

Table 2: Height-for-age

<i>System</i>	<i>Reference Population</i>	<i>Method</i>	<i>Classification</i>
Kanawati and McLaren (65)	Boston	% of median	≥ 95%: normal
			95-90%: mild malnutrition
			90-85%: moderate malnutrition
			85%: severe malnutrition
WHO (39)	Boston	% of median	105-93%: normal
			93-80%: short
			< 80%: dwarf
CDC (37)	NCHS	% of median	≥ 90%: adequate
			< 90%: stunted or chronically undernourished

Table 3: Weight-for-height

<i>System</i>	<i>Reference</i>	<i>Method</i>	<i>Classification</i>
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	<i>Population</i>		
McLaren/Read (79)	Boston	% of median	110-90%: normal
			90-85%: mild malnutrition
			85-75%: moderate malnutrition
			<75%: and/or edema; severe malnutrition
Waterlow (125)	Boston	% of median	110-90%: normal
			90-80%: mild malnutrition
			80-70%: moderate malnutrition
			<70%: severe malnutrition
Viteri/Beghin (121)	Boston	% of median	< 92%: warning sign (needs clinical exam)
Patulul Project, Guatemala (34)	Boston	% of median	>90%: normal
			90-81%: moderate malnutrition
			≤ 80%: severe malnutrition
CDC (37)	NCHS	% of median	85-80%: moderate malnutrition
			<80%: wasted/acute malnutrition
NCHS (90)	NCHS	Percentile	75th-25th: normal
			10th-5th: moderate malnutrition
			<5th: severe malnutrition

Table 4: Weight-for-height and height-for-age

<i>System</i>	<i>Reference</i>	<i>Method</i>	<i>Classification</i>
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	<i>Population</i>		
Waterlow (125)	Boston	% of median	(see above for actual percentages) adequate weigh/height and height/age: normal low weigh/height, normal height/age: acute malnutrition normal weigh/height, low height/age: chronic malnutrition low weigh/height and height/age: chronic and acute malnutrition
<i>System</i>	<i>Reference Population</i>	<i>Method</i>	<i>Classification</i>
WHO (39) and Shakir (106)	Wolanski 16.5 cm.	% of median	>85% or >14 cm.: normal
			85-76% or 14-12.5 cm.: malnutrition
			<76% or <12.5 cm.: severe malnutrition

(From: APHA, Growth Monitoring. 1983. pp. 16-17.

Session 30, Trainer Attachment 30F: Examples of information to be recorded on a growth chart

The following examples or ones that you have collected from local records should be given to the groups for charting and interpretation. Please adapt the questions and methods for indicating vaccinations received, illnesses and other observations to be consistent with the procedures followed in the host country. Also obtain or develop copies of the Growth Chart that are used in the host country.

Kwami was born in August 1983 and weighed 3.5 kilos at birth. Even though Kwami's mother already had seven children, she was delighted and wanted to do her best for her baby, She went regularly to the consultation pre-scolaire to weigh Kwami and to have him vaccinated against polio, TB, diphtheria, tetanus, and whooping cough. Unfortunately, she was not feeling well the day of the measles vaccination and stayed home. When Kwami was 18 months old he got measles and was very ill. Because Kwami's mother followed the advice of the animatrice at the Health Center and had been feeding him even while breastfeeding, Kwami didn't die. After the measles, Kwami's mother weighed him at the clinic and the animatrice explained what to give him to help him gain his strength and weight back.

1) Plot Kwami's weight as recorded below on the chart:

1983	August	3.5 kg	1984	June	9.0 kg
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	September	4.0 kg		July	9.5 kg
	October	5.0 kg		August	9.5 kg
	November	5.5 kg		September	10.0 kg
	December	6.0 kg		October	10.5 kg
1984	January	7.0 kg		November	11.0 kg
	February	7.5 kg		December	11.0 kg
	March	8.0 kg	1985	January	9.5 kg
	April	8.5 kg		February	10.0 kg
	May	8.5 kg		March	10.0 kg
				April	10.5 kg
				May	10.5 kg
				June	11.5 kg
				July	11.0 kg

- 2) Place the symbols for polio, DTP, and BCG vaccinations on the right month's to receive these vaccines.
- 3) Place the right foods for Kwami at 6 months, and 1 year.
- 4) When did Kwami have measles? Place on chart.
- 5) What foods should the animatrice suggest after Kwami's measles episode? Place them on the chart.
- 6) Were there any reasons in Kwami's history for the animatrice to pay close attention to his growth? Place the symbols in "Reasons for Special Care".

Jeannette was born in September 1983. Due to a poor harvest the year before, Jeannette's mother was not well nourished and Jeannette was born weighing 2.0 Kilos. Jeannette's mother brought her to the Health Center regularly for 9 months, where she received her BCG, Polio, DTP, and measles vaccinations. Jeannette and her family went to live near their fields during the planting season, and Jeannette didn't visit the Health Center again until September. Jeannette was in good health after 4 months of living near the fields where food was plentiful and varied. After returning to town, Jeannette did well until her mother discovered that she was pregnant, and immediately stopped breast feeding. During that month Jeannette's weight remained stable. In

January of 1985 Jeannette had a bad case of diarrhea, and her weight dropped considerably. In March Jeannette and her mother came to the Health Center. Although Jeannette's weight was not below normal, she was in danger of malnutrition. What are some steps that the animatrice at the Health Center can recommend to Jeannette's mother to avoid malnutrition?

1) Place the calendar strips on Jeannette's chart.

2) Plot Jeannette's weight as follows:

1983	September	2.0 kg	1984	September	12.0 kg
	October	3.0 kg		October	12.5 kg
	November	3.5 kg		November	13.0 kg
	December	4.5 kg		December	13.0 kg
1984	January	5.0 kg	1985	January	11.0 kg
	February	5.5 kg		February	10.0 kg
	March	6.5 kg		March	10.0 kg
	April	7.5 kg			
	May	8.0 kg			

3) Place the vaccinations that Jeannette received in the appropriate time slots.

4) What risk factors existed for Jeannette? Place them under "Reasons for Special Care".

5) What occurred that jeopardized Jeannette's health and weight gain? Place the symbols in the appropriate time slots.

6) What recommendations should the animatrice make to help Jeannette recover from her nutritional set-back?

Session 31: Breastfeeding and weaning

Session 31, Handout 31A: Local practices regarding infant feeding

Session 31, Handout 31B: Questions and answers about weaning

Session 31, Handout 31C: Guidelines for weaning

Session 31, Handout 31D: Methods and food sources to improve weaning foods

Session 31, Trainer Attachment 31A: The story of a bottle-fed child

Session 31, Trainer Attachment 31B: Breastfeeding and bottle-feeding: advantages & disadvantages

Session 31, Trainer Attachment 31C: The story of Ami

Session 31, Trainer Attachment 31D: Sample problems in infant feeding

TOTAL TIME: 3 hours (plus 1 additional hour if optional Step 8 is elected)

OVERVIEW

If an infant is properly fed during the first year, he or she will grow well and have a good start in life. Breastfeeding and nutritious weaning foods are the best ways to ensure good growth and reduce the risk of malnutrition in the second and third years. The six to twelve month period in a baby's life is the time when either good or poor nutrition begins.

During this session, participants discuss the myriad advantages of breastfeeding and examine the problems which result when bottle-feeding is practiced. During the second part of the session, the group participates in a demonstration of the preparation of weaning foods and learns basic guidelines for the introduction of supplementary foods into a baby's first year diet. In a final, optional activity, the group practices making weaning foods using locally available foods.

OBJECTIVES

- To describe and compare the advantages and disadvantages of breastfeeding and bottle feeding. (Steps 1-3)
- To describe the weaning process and discuss important principles of what, when, and how much of the new foods to give a baby during the first year. (Steps 4 and 5)
- To examine several methods and food sources to improve weaning foods in the local area. (Step 6 and 7)
- To practice making nutritious weaning foods using locally available foods (optional). (Step 8)

RESOURCES

- Infant Nutrition in the Subtropics and Tropics. Chapters 5 and 6.
- Guidelines for Training Community Health Workers in Nutrition. pp. 45-71
- Breastfeeding and Weaning. Peace Corps Resource Packet #12.

Handouts:

- 31A Local Practices Regarding Infant Feeding
- 31B Questions & Answers About Weaning
- 31C Guidelines for Weaning
- 31D Methods & Food Sources to Improve Weaning Foods

Trainer Attachments:

- 31A Story of a Bottle-Fed Child
- 31B Breastfeeding and Bottle Feeding: Advantages and Disadvantages
- 31C The Story of Ami
- 31D Sample Problems in Infant Feeding

MATERIALS

Posters, flip-charts, flannel board or other visual materials for the weaning presentation in Step 4; local foods, equipment, utensils and cooking area for preparing multimixes in Step 8; newsprint and markers.

PROCEDURE

Trainer Note

Discussions of infant feeding included in this session should be coordinated with any activities and sessions you may conduct on maternal and child health.

If possible, select a participant from the group to present the Story of a Bottle-fed Child in Step 2. The presentation and demonstration on weaning foods in Step 4 could be done by any one of several people: the trainer, a local health worker, a PCV working in nutrition, or one of the participants if the group has been in-country long enough to be familiar with the culture.

For optional Step 8, where participants practice making weaning foods, set-up a kitchen area with locally appropriate equipment, utensils, and food items. Pre-cook any of the foods that require considerable cooking time (e.g., grains and legumes).

Step 1 (15 min.)

Infant Feeding in the Community

Review the session objectives and begin a dialogue on infant feeding. Ask participants to remember field trips to the community or clinic, any visits at the homes of local families, and other occasions where they have had an opportunity to observe and talk to mothers with small babies. Have participants share any information they may have gathered about breastfeeding and bottle-feeding practices in the local community. Stimulate discussion with these questions:

- Do all mothers in the community breastfeed their babies?
- For how many months does a mother breastfeed her baby?
- What feeding practices are forbidden (what are the food taboos)? (For example, in some areas breastfeeding during pregnancy is forbidden. In some places feeding colostrum, the fluid from the breasts in the first day after delivery, is a taboo.)
- What food or drink is given to the baby when the mother goes out to work?
- If a mother is bottle feeding her baby, why did she decide to feed the baby in that way? What mixture does she feed him?

Help the group with the questions they can't answer such that they have an overall picture of how infant feeding occurs in their host communities.

Trainer Note

In this session, the discussion of breastfeeding should focus mostly on the infant and his or her nutrition. Aspects of breastfeeding which more closely concern the mother (e.g., complications in milk production) are treated in the Technical Health Training Manual, Module 6, Maternal and Child Health.

Step 2 (25 min)

Story of a Bottle-Fed Child

Read the story from Trainer Attachment 31A (Story of a Bottle Fed Child) or describe an incident in which a child is malnourished and has diarrhea due to inappropriate bottle-feeding.

Afterwards facilitate a discussion of the problems of bottle-feeding in developing countries and its impact on infant health. Have participants generate a list of advantages and disadvantages of both breastfeeding and bottle-feeding. Ask someone from the group to record these on newsprint.

Trainer Note

Adapt the story in Trainer Attachment 31A or create your own given local practices and conditions. The discussion following the story should include the following points:

- Pre-disposing factors include: poor sanitation, inappropriate use of bottle, contaminated water, insufficient formula, poverty, and inappropriate advertising.
- The precipitating cause of malnutrition and diarrhea was the incorrect use of the bottle and formula given the existing circumstances.
- There are many reasons why the mother might choose bottle feeding: for its status value, because she believes it's the modern way, she has to work, she has been told it is "better" for her baby, she doesn't feel she has enough milk, or she's tired of breastfeeding after many pregnancies.

The group should generate a list of advantages and disadvantages of breastfeeding and bottle-feeding, similar to the list in Trainer Attachment 31B. Note that there are virtually no disadvantages of breastfeeding. Advantages of bottle-feeding would accrue primarily to a small percentage of women who are economically and socially well off.

If bottle-feeding is a major problem in the host country, have participants carry out some of the exercises on pages 60 and 61 of Guidelines for Training Community Health Workers in Nutrition.

Step 3 (15 min)

Promoting Breastfeeding

Have the group review their list of advantages and disadvantages. Ask them to briefly consider the PCV's role in promoting breastfeeding in the community. Facilitate the discussion by asking:

- What might be major constraints to promoting breastfeeding in your job?
- What kinds of information do you need to know before promoting or discussing breastfeeding?
- What are some possible strategies for promoting breastfeeding?

Please note the points made in the Trainer Note below and include them in this discussion. Distribute Handout 31A (Local Practices Regarding Infant Feeding) and encourage participants to use the list of questions as a basis for finding out essential information once they get to their communities.

Trainer Note

If breastfeeding is the norm in the host culture, PCVs should take care not to call excessive

attention to it; such a focus could risk upsetting a well-functioning infant feeding practice. The following paragraph from Guidelines For Training Community Health Workers in Nutrition summarizes the community health worker's role in relation to infant feeding:

"Where breast-feeding is the normal practice in a community, little or no education is needed except for those with special problems. The traditional practice should be encouraged. In areas where traditional knowledge and practices are lost, especially in towns, education and personal support are needed. In many developing countries breastfeeding is usual in the first year of life. Recently, there have been some influences which are changing this important practice. These influences include urban ways of life, women working away from their homes to earn additional incomes, the advertising of infant foods, and the idea that bottle-feeding is modern and therefore somehow better. This is wrong. Community health workers should act to reduce the effect of these bad influences on breastfeeding".

Step 4 (45 min.)

Weaning Foods Demonstration

Ask a member of the group to define "weaning" in relation to the discussion thus far on breastfeeding. Tell the group that to learn more about the weaning process, especially in the context of the local culture, they will participate in a simulation. Explain the following scenario:

You are mothers attending a well-baby clinic with your children (under 5 years of age). Every month your children are weighed and their progress is monitored. During each clinic visit, the health educator has some activity for you to learn more about protecting your children's health.

When participants have assumed their roles, introduce yourself as the "health educator". Using local terms, names, and references to the local culture, present a story or health talk that discusses the weaning process. Include:

- Welcome in local language.
- Story that details the steps of the weaning process by discussing and illustrating foods to introduce at different developmental stages.
- Questions to mothers regarding what they could feed their child at each age. (e.g., Ruth, now that your child is crawling, what will you feed him?).
- Demonstration of a weaning food - a slight adaptation of a traditional porridge for a 6-month old child. (Use local utensils, food and cooking materials; have some "women" help with the preparation).
- Tasting of weaning food.
- Local proverb or phrase that depicts the gradual but steady process of weaning a child and teaching him or her to eat (e.g., "Slow, slow, catch monkey in the woods").

Trainer Note

The presentation of the story and weaning food demonstration should be realistic to the local setting and should be an example of how participants might present nutrition education to a

group of women. Use Trainer Attachment 31C (The Story of Ami), Handout 31B (Questions & Answers about Weaning) and the picture stories in Resource Packet #12, Breastfeeding and Weaning to develop a presentation that represents the local situation. Also, tape posters (e.g., of the three food groups) on the walls to help simulate the clinic environment.

Be sure your presentation and demonstration follow the weaning principles outlined in Handout 31C (Guidelines for Weaning).

If possible, invite host country trainers to participate in the simulation.

Step 5 (31 min)

Processing the Simulation

First ask participants to briefly comment on how it felt to play the role of a village woman at the clinic and how effective the nutrition education was. Ask the group:

(As village mothers in the role play)

- Did you feel involved in the learning?
- Were you interested in the information?
- Did you feel inclined to try the food or accept any advice the health worker gave regarding your child?

(As future health educators in your site)

- What were the most effective aspects of the presentation? Most ineffective?
- How culturally appropriate was the language? Materials?
- What problems would you have conducting a presentation similar to this one?

Next ask the group to recall all the technical information on weaning they remember from the simulation. Have a discussion which addresses the main points included in Handout 31B (Questions & Answers about Weaning). Write the key ideas that came out of the discussion on newsprint for reference during the remainder of the session.

When participants have finished pooling their knowledge of the weaning process, distribute Handout 31B (Questions & Answers about Weaning) and 31C (Guidelines for Weaning). Have the group look over the information and ask any questions they might have. Have participants hold questions related to multimixes for the next step.

Step 6 (15 min)

Methods and Food Sources for Improving Weaning Foods

Ask the group to review and discuss the explanation of multimixes on page 3 of Handout 31B (Questions & Answers about Weaning). Arrange around the room some of the food items you purchased for their practice preparation (optional Step 8), or list several traditional food items on the board. Have participants point out possible combinations or mixes from among the food items. Relate the multimixes to the three food groups which participants studied in Session 29. Briefly discuss how Volunteers can explain the concept of multimixes in a way that is understandable and acceptable in the local culture.

If relevant to the participants work assignments and the communities where they will live, distribute Handout 31D (Methods and Food Sources to Improve Weaning Foods). Help the

group identify which types of preparation are most appropriate and feasible for local communities.

Step 7 (20 min)

Problem Situations in Infant Feeding

To close the session, quickly divide participants into small groups & give each one a problem from Trainer Attachment 31D (Sample Problems in Infant Feeding). Explain that these are situations which Volunteers frequently encounter in the field. Ask the groups to decide and explain to the large group what the problem is and what advice they would give to the mother.

If participants are going to do Step 8, assign them the problems and have them discuss the solutions as they prepare the weaning foods at the stations.

Optional Step 8 (55 min)

Making Weaning Foods

Ask participants to form small groups and practice making a variety of weaning foods. Ask each group to first make a basic mix, then experiment with different foods to combine for multimixes. When participants have a number of dishes prepared, ask each group to describe their combinations to the others. Have everyone taste a little of each basic mix and multimix.

Trainer Note

As participants are sharing their various weaning foods with each other, encourage them to discuss the mixes in light of factors such as cost, cultural acceptability, degree of difficulty in preparation, special equipment requirements and so forth.

If there are any women associated with the training center who have older babies, invite them to attend this part of the session and taste-test some of the weaning foods with the children.

Session 31, Handout 31A: Local practices regarding infant feeding

The following questions seek information on local practices regarding breastfeeding; these are important to know before beginning any promotional or educational activities.

- Do most mothers breastfeed their babies? If not, how do they feed them?
- Up to what age are babies breastfed?
- At what point do mothers begin breastfeeding? Immediately after birth? At 2 days old?
- Is breastfeeding actively encouraged by doctors, nurses, midwives?
- What is the frequency of breastfeeding? on demand? hourly schedules?
- What is the baby fed if the mother goes out to work? Who feeds the baby?
- Is there an "indigenous formula"? e.g. a "gruel" or "pap" made for babies? What is it? How is it used?
- Are there beliefs about certain foods or local herbs that increase the milk output?
- What are the common problems encountered before or during breastfeeding?

- When do mothers feel that breast milk is insufficient and that other foods are to be given?
- What are the common foods given when weaning and in what form are they given?

Add other relevant questions, e.g. regarding the use of bottle and formula.

Session 31, Handout 31B: Questions and answers about weaning

The weaning age child is currently the subject of numerous efforts to reduce infant mortality and improve child health. This chapter answers some frequently asked questions about weaning and the weaning-age child. These answers summarize available information and are the basis for the program recommendations made in the paper. Health and nutrition issues are covered as well as determinants of weaning practices. This section draws on a number of references in the annotated bibliography and especially Cameron and Hofvander's "Manual on Feeding Infants and Young Children".

What is weaning?

Weaning is the transitional stage when a young child's diet gradually changes from one of milk alone to a diet based on what the family eats. Weaning begins when the child is introduced to foods other than breastmilk (or a breastmilk substitute) and is completed when the child is fully accustomed to the regular family diet. During weaning, the child should continue to be breastfed, since breastmilk is an important nutritional supplement to the weaning foods.

Weaning also has a social and psychological aspect. The special relationship between mother and child evolves as the child becomes more independent and other family members assume responsibility for the child.

Why is the weaning period a dangerous time for infants and young children?

During weaning the incidence of diarrhea and malnutrition is high, making the risk of mortality greater than at any other time in life.

The foods offered to the child and the preparation and storage methods used may cause health problems. The weaning food, in most cases, is a watery, starchy porridge that provides fewer nutrients than breastmilk at a time when the child's nutrition requirements are increasing rapidly to meet the demands of normal growth. The porridge may be prepared with contaminated water, unclean utensils and then stored for several hours before serving. The result is a food with enough harmful bacteria to cause gastroenteritis.

When should weaning begin and how long should it last?

The exact time for the introduction of food will depend on how well the child is growing. However, since relatively few children participate in growth monitoring programs, the best advice is to begin weaning when a child is between 4 and 6 months of age. By that time children are able to swallow and digest bland semisolid foods without difficulty. Generally, between 4 and 6 months of age, the rapidly growing child needs food in addition to milk to ensure that nutrient requirements are met.

Both the early and late introduction of foods have been linked with child health problems. Introducing foods before 4 months leads to an increased incidence of diarrhea and may lead to increased mortality. On the other hand, the introduction of foods too late may mean nutrition requirements are not met, beginning the malnutrition process and leaving the child more vulnerable to other common childhood diseases.

The duration of the weaning period varies among cultures and communities because the duration of breastfeeding and the age when children eat adult foods differ. Weaning can be completed when the child is 12 months of age if the duration of breastfeeding is short and the transition to solid, "adult" foods rapid. Or, it can last through the second year of life in cultures where breastfeeding is prolonged and the introduction of foods from the family pot delayed.

How should foods be Introduced to the weaning age child?

The introduction of foods should be gradual. First foods should be given using a teaspoon, a few spoonfuls at a time. The mashed or pureed first food can be given after breastfeeding if it is well accepted or before breastfeeding (when the child is hungry) if acceptance is a problem. Initially, the food can be given once a day, but within a month, the quantity, frequency, and types of food should increase. By 6 months the child should receive food 2 to 4 times a day. Children learning to eat often spit out the food. Mothers should be told this and reassured that it is not a sign that the child does not want to eat. A cup and spoon should be used for feeding since they are easiest to clean. Most infants can learn to drink from a cup by 6 months of age.

Once a child is accustomed to eating (by 6 or 7 months), solid foods can begin to contribute significantly to the child's total nutrient intake. However, the amount that can be eaten at one time is limited by the child's small stomach. (A one-year-old cannot eat more than 1 to 1 1/2 cups, or 200 to 300 ml., of food in a meal.) Therefore, the food must be a concentrated source of nutrients or must be given more frequently. It is recommended that these foods contain oil, fat, or sugar and that the child be fed a total of 4 to 6 times per day, counting both meals and snacks. To ensure that youngsters receive the food they need, their food should be separated from the family pot and served in their own bowls. Gradually, food consistency can change: at 9 months children can manage small pieces of easily chewable foods. Food quantity should also increase. By 12 months, children can eat most of the family foods. At about 18 months they should be eating half the adult quantity. This is an easy way for mothers to estimate food quantities.

What kinds of foods are suitable for the weaning age child?

A variety of foods are suitable. The kind of food depends on what is traditionally fed to children, what food the family has available, and the amount of time the mother has to prepare weaning foods.

After the initial introduction of the weaning food, it is recommended that the food does not rely on a single ingredient. The ideal weaning food combines different types of foods and is fed to infants along with breast milk for as long as the mothers are able to breastfeed.

The first foods should be bland, not fibrous, and well-mashed or pureed. The most common first foods are fruits, vegetables, and the local staple grain or tuber. As the infant begins to eat more, a *basic mix* of two ingredients, the staple grain or tuber plus a legume (nut or bean), should be substituted for the single ingredient porridge. Porridge from the basic mix should be richer in calories and provide much more protein than the traditional porridge.

After the first six months, when solid foods begin to supply a major portion of the child's nutrients, basic mixes can be replaced by multimixes, one-pot foods that make a complete meal. If the ingredients are combined in suitable proportions, the *multimix* will supply enough calories (from carbohydrates and fats), protein, and vitamins and minerals to meet the nutrient requirements for maintenance and growth. They can be prepared from foods just for the child or from foods cooked for the family (as long as they are not spicy). Multimixes have four basic ingredients:

1. A staple, or carbohydrate food: grains (rice, wheat, corn, millet, sorghum, or oats) are recommended over roots or green bananas because their protein content is higher and their fiber content is lower.
2. A protein supplement: this can be a plant protein, such as beans, lentils, and nuts, or an animal protein, like eggs, yogurt, milk, fish and meat.
3. A vitamin and mineral supplement: the best foods are those high in vitamin A, such as dark yellow or orange squash, sweet potatoes, and deep orange or yellow fruits, like ripe papaya.
4. A calorie supplement: the addition of fat, oil, coconut milk, or sugar will make the food more "calorie dense" because these foods provide calories without adding volume.

What are other factors that determine weaning practices?

Economic, social, cultural and environmental factors all play a role in what children eat and how they will be fed.

The mother is principally responsible for feeding the child, and she is key to efforts to improve infant feeding practices. The child is dependent on her understanding of appropriate feeding practices and the limitations that prevent her from implementing appropriate feeding practices. Programs must take account of these realities:

- The mother's beliefs and practices concerning weaning. These practices will be influenced by the family, community and culture. For example, mothers living in urban areas may begin weaning earlier than mothers in rural areas, because in many urban areas there is no breastfeeding support structure.
- The mother's level of formal schooling. This factor often parallels the mother's knowledge of nutrition and has been shown to be positively correlated with her children's health status. (Mosley, 1982). The health status is likely to be better the more years of school the mother has attended.
- The role of women in the society and in the family. For example, how much voice the mother has in how the family income is spent. This will influence if income is used to purchase additional foods for the infant.
- The mother's health status. If the mother is pregnant, or ill, she may have little energy to prepare a separate weaning food, or feed her child more frequently, in addition to her other responsibilities.
- The amount of time the mother has available for food preparation. Women are usually responsible for child-care and housework. Many women also work in the fields, market or factory. The amount of time they have available will determine whether, for example, they will

be willing to prepare a multi-ingredient food separately for children, and the time they can spend processing ingredients before cooking. Busy mothers often cook foods early in the morning and store it for later consumption. In hot climates particularly, bacteria in the foods multiply rapidly and cause diarrheal diseases in children.

- The availability of household resources. Lack of water, sanitary facilities and cooking utensils may also make it difficult for mothers to guarantee their children uncontaminated food. These conditions may also preclude the use of multistep cooking procedures that require processing equipment.

Other factors that influence infant feeding practices are:

- Food availability. Some foods may be available only during certain times of the year. For example, groundnuts may be available only 6 months of the year. Many of the family staples or the food available in the markets may be scarce or expensive during the time before harvest.

Food availability in the family is directly related to food production and the food marketing system of the country. Food production is influenced by climate, land tenancy system, farming methods (the types of cropping, fertilizer, and seeds), and the availability and use of agriculture extension services.

- Fuel availability. Cooking fuel (charcoal, wood, gas and kerosene) may be scarce, expensive, and time consuming to obtain. (Many of these same constraints apply to water) Infant foods that require a long cooking time, such as improved *khichuri* and *suji* mixture (from Bangladesh) that needs an hour to cook, will not become part of a daily routine.

(From: World Federation of Public Health Associations, "Program Activities for Improving Weaning Practices". pp. 5-7.)

Session 31, Handout 31C: Guidelines for weaning

- breastfeed solely for the first 4 months.
- unless the weather is very hot, breastfed babies will not need to drink water during the first few months of life. If water is needed, feed baby boiled water with a cup and spoon.
- add (expressed) breast milk to baby's cereal and other foods to provide proteins.
- start giving semi-solid foods (e.g. porridge) at about 5 months with an emphasis on protein rich cereals.
- add easily digestible foods, (well-cooked vegetables and soft fruits) gradually - one at a time, in small amounts.
- add protein mixes gradually. Start with a 1:4 ratio of legume: cereal; progress to 1:2 ratio of legume: cereal.
- use protein foods that are easily digested and make the best use of complementary proteins.
- after 6 months of age, weaning foods should include nutrients from the 3 food groups.

- infants' meals should not include pepper and harsh spices.
- salt and sugar should seldom be used in an infant's meals.
- pound or chop foods in advance of cooking to help ensure that baby's foods are soft and not overcooked.
- infants should be fed small meals on a frequent basis (at least 4 times a day).
- at 12 months, a child can eat a modified adult diet (i.e., adequate protein, proper consistency, no harsh spices).
- breastfeeding should be prolonged until the baby is 18 to 24 months old.
- weaning should be a slow, consistent and progressive process of increasing food types and amounts while slowly decreasing frequency of breastfeeding.
- confidence, patience and persistence is required of the mother in order to wean an infant successfully.

(Adapted from: Technical Health Training Manual, [Draft], Peace Corps.)

Session 31, Handout 31D: Methods and food sources to improve weaning foods

Type of Preparation:	ADVANTAGES	DISADVANTAGES
1. Home-prepared foods (family pot)	<p>Cost to a family can be minimal. Have potential to affect everyday behavior with high probability that these changes will continue over time. Ingredients available locally. No new technology needed. Distribution and packaging costs nil.</p>	<p>May require more of women's time In processing and preparation. Require serious nutrition education effort: staff and money. Personnel must be trained in the basic messages and how to communicate them. Food quality variable. Seasonal variations may leave families with few options during some months.</p>
2. Village/Group prepared foods	<p>Food is made with some supervision. Quality and hygiene should be ensured. Less expensive than central processing. Better practices are learned when foods are prepared in a group situation than It centrally processed. Allow for some processing that would be too lime consuming for</p>	<p>Make people dependent on purchased food and on food processing that cannot be done al home. Can be difficult to organize. Chance of bag-range, home-based change, less than with a homemade food. Raw materials may be difficult to supply in a timely fashion. Require capital for "start up" costs and then maintenance costs must be met.</p>

	<p>mothers at home. Have potential to general income. Can serve as a demonstration of benefits of new local boas. Can generate community enthusiasm and other benefits through group work on a project.</p>	<p>Require small business management skills and personnel willing to stay with the project. Need a strong education and promotion effort: staff and money.</p>
3. Foods processed at central location	<p>Foods are made under supervision, so the nutrient content is controlled. Save lime for the person preparing the food. May save fuel. Foods unsuitable for consumption by infants without processing can be made into good, nutritious food. Can promote awareness of need for timely introduction of food. Can be stored without contamination. Easily prepared. May be the most cost efficient way for the government to provide food to those families who cannot afford more or different foods.</p>	<p>Cost of the product is high either to the government or families. Make families dependent on purchased food. Require capital investment for physical facilities for storage and processing. Requires a marketing plan to ensure that price policies, distribution networks, and promotional strategies are finely tuned. Commercial foods may not reach the target group, but only those who can afford it. Raw materials may be difficult to supply in sufficient quality because of poor crop yields or irregular deliveries of imported foods. Packaging and distribution costs high. Changes in feeding practices made as a result of foods may not be easily sustained if foods are no longer available.</p>
Food Sources	Advantages	Disadvantages
1. Imported foods (Donated or Purchased)	<p>Could provide higher cost ingredients, e.g. milk powder, than consumers can afford. Help governments subsidize cost of foods for low income families.</p>	<p>If imported food is different from local staples it may create dependence on foods difficult to replace locally. It the food must be purchased, use valuable foreign exchange. Supplies uncertain. Require extensive storage, packaging, and distribution operation; thus government costs are high. Nutrition education efforts may not be applicable to local foods. May be a disincentive to local production or to village efforts to meet infant food problem.</p>

2. Local foods	<p>Call on people's creativity to utilize or produce local resources to meet a need.</p> <p>Effort is more likely to be sustained over time.</p> <p>Can have a positive economic impact in the family and community through increased agricultural production.</p>	<p>May require more time spent on the part of families or village to meet a local need.</p>
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(From: World Federation of Public Health Associations, "Program Activities for Improving Weaning Practices". pp. 22-23.)

Session 31, Trainer Attachment 31A: The story of a bottle-fed child

Marangu is a village in Africa where up until recently women have been breastfeeding their young ones. Marangu is not too far from an urban center where there is a child health clinic.

Grace has lived in Marangu all her life and is married to a farmer. They have very little income and now have five children to care for. Grace's newest baby, Eli, is 5 months old. She takes him to the clinic once a month to be weighed. On her way to the clinic, she notices pictures on a big board along the road - pictures of a happy, healthy baby boy being fed a bottle by his mother. Grace notices how happy and pretty the mother in the picture looks. Everytime she sees the pictures she thinks how wonderful it would be to be just like this woman.

Sometimes women dressed like nurses, come to the clinic to give free samples of formula. They also visit women in their homes to show them how to prepare the formula. Some of Grace's friends tell her that bottle-feeding with formula is better for babies and easier for the mother. They say breastfeeding makes your breasts droop and look ugly. The more Grace listened to their talk the more she became convinced that she should start feeding Eli with a bottle. The next time Grace went to the clinic, she took the money she had been saving for Eli's baptism and spent it all on 5 boxes of infant formula. Eli adjusted quite easily to the bottle. Grace however had some trouble with swollen and painful breasts. But she felt so happy at first, that the painful breasts didn't bother her.

Grace couldn't read the directions on the box, so she mixed the formula with stream water until it looked "right". Eli was frequently sick with diarrhea but Grace assumed it was because he was teething and probably adjusting to the bottle.

As time went by, her supply of formula began to run low and she began to use less and less of it, as she mixed the bottles for Eli.

Eli began to lose weight and didn't seem happy. He was constantly either sick with diarrhea or constipated. His arms and legs were swollen, and he always looked miserable. Grace was embarrassed to take Eli to the clinic. She felt foolish because she was not able to feed her baby with formula that was suppose to be so simple and easy to use.

Grace decided too late that she should begin breastfeeding Eli again. She tried, but he was not able to get enough milk from her breasts. She had stopped producing milk because he wasn't sucking and now Eli was not strong enough to suck hard. Grace was miserable and Eli was close to death.

Note: Adapt the story to include the most relevant factors (e.g. poor sanitation) which contribute to malnutrition resulting from inappropriate bottle-feeding.

Session 31, Trainer Attachment 31B: Breastfeeding and bottle-feeding: advantages & disadvantages

Breast feeding

Advantages:

- naturally suited to needs and digestion of infants
- needs no preparation, less work for mother
- ready on demand
- inexpensive
- clean
- right temperature & concentration
- contains protective elements for infant
- baby benefits from cuddling and close contact with mother
- may delay conception, (however is not reliable as a contraceptive)
- helps uterus of mother return to normal size

Disadvantages:

- severely malnourished mother who breastfeeds is depriving both herself and her child of vital nutrients.

Bottle-feeding

Advantages:

- allows mother more independence, ability to work away from home
- allows other members of family to feed child
- (N. B. these may not be advantages for the baby)

Disadvantages:

- formula is expensive
- formula needs to be accurately mixed for adequate nutrition
- takes preparation time
- formula needs to be prepared using hygiene practices
- baby is more susceptible to diseases & infections when bottles/teats/formula are contaminated
- fuel needed for heating water
- need adequate amounts of safe water to prepare formula and clean bottle
- more than one bottle and teat are needed
- need cleaning utensils and soap

Session 31, Trainer Attachment 31C: The story of Ami

Ami was born just after the first moon of the new year. Her mother, Daba, gave her the breast right away. Ami was happy, healthy and growing.

When Ami could sit by herself, Daba began to fix a liquid rice porridge for her. She gave Ami only one or two spoonfuls the first time. At first Ami just spat out most of the porridge - but her mother continued to give it to her patiently. She knew that just breastfeeding was not enough for Ami now - she needed more food. She had begun to crawl around and was very active she needed additional food to help her grow and give her energy to play. Daba also knew that Ami must learn to eat adult foods slowly so that when she was older and stopped breastfeeding, she would not refuse the new food and grow sick. Daba knew many children who had become weak and died when they were not allowed the breast anymore.

Soon Ami was eating a small bowl of rice porridge each morning and afternoon. After Ami began to like the porridge, Daba added some mashed bannanas or pumpkin, a little at a time. Soon Ami got used to trying new foods and she liked almost everything. She was still breastfeeding but not as frequently. By the time Ami was able to stand up while holding onto something, she was eating a thicker rice porridge with pounded fish or an egg yolk. She was well and was rarely sick or unhappy. She was naughty at times. Her mother scolded her, but was very pleased that Ami was healthy and well enough to get into mischief. She was a smart little girl.

By the time Ami was almost walking by herself, she had four new teeth. She was eating almost the same things the rest of the family was eating, only it was more mashed up and less spicy. She still had breast milk at least twice a day. Daba gave Ami small meals four times a day because she knew that babies couldn't eat much at one time.

By the time Ami was walking by herself, she was eating the same foods as her family. Daba helped her eat by cutting her foods into small pieces and giving her a good piece of fish or chicken at each meal. Slowly Ami stopped taking the breast, because she was very healthy and eating all she needed.

Daba was wise to teach her child to eat adult foods slowly while still breastfeeding her. In this way Ami learned to like the taste and feel of new foods, before being deprived of breast milk. Ami continues to grow bigger, healthier and happier.

(Adapted from: Technical Health Training Manual, [Draft], Peace Corps.)

Session 31, Trainer Attachment 31D: Sample problems in infant feeding

A 9 month old child has acute diarrhea. He has been breastfed only and the mother is convinced he's not ready to eat solid foods, because she says he gets diarrhea everytime she feeds him. What would you suggest?

A year old child brought to the clinic has not gained weight since her last visit 3 months ago seems apathetic and appears to have edema. When you ask what she's being fed-the mother says,

"She doesn't want to eat". What could the problem be, and how would you go about handling the situation?

You arrive at a friend's home and discover her cousin (from another village) feeding a young baby with a dirty bottle. When the subject comes up, you discover she is not breastfeeding because this is not her child. The child's mother is dead. What would you advise?

Shortly after arriving in your village you notice a child about 2 years of age sitting on the front porch of a nearby home. She is lethargic, has a swollen belly, thin limbs and conjunctivitis. When you find her parents, they say "she eats a lot". How would you go about handling this situation?

(Develop other case studies based on the nutritional problems of infants and young children in-country.)

Session 32: Preventing malnutrition

Session 32, Handout 32A: Health counseling with individuals

Session 32, Trainer Attachment 32A: The story of Bola

Session 32, Trainer Attachment 32B: Child dietary recommendation exercise

TOTAL TIME: 3 hours

OVERVIEW

In the previous sessions, participants learned about and practiced preparing nutritious meals using locally available food. They also learned how to assess a child's nutritional status and discussed the importance of breastfeeding and proper weaning for infant and child health.

In this session participants examine the causes and conditions which underlie malnutrition. Later they develop specific dietary recommendations for cases of malnutrition and practice counseling mother's about foods to give their children during and after episodes of diarrhea. This session closes with an optional discussion of and visit to a Nutrition Rehabilitation Center.

OBJECTIVES

- To recognize and describe the chain of events leading to malnutrition. (Steps 1, 2)
- To identify and discuss possible strategies for preventing malnutrition. (Steps 3-5)
- To counsel a mother about child nutrition. (Steps 6, 7)

RESOURCES

- Helping Health Workers Learn. Chapter 25
- Nutrition Rehabilitation: Its Practical Application.

Handout:

- 32A Health Counseling with Individuals

Trainer Attachments:

- 32A Story of Bola
- 32B Child Dietary Recommendation Exercise

MATERIALS Newsprint, markers

PROCEDURE

Trainer Note

Participants should be asked to bring to this session information they collected and analyzed during their information gathering visits to the community (Sessions 11 and 12) and notes from other training sessions that you think would help them identify underlying factors which may affect a child's nutritional status.

Since they will also be asked to design a health education activity, they should bring their copies of *Helping Health Workers Learn* to this session as it provides many helpful ideas of ways to teach and to learn about nutrition.

Step 1 (10 min.)

Identifying the Conditions Which Underlie Malnutrition

Tell the participants that in this step you will read them a story and they should listen and identify the various biological, physical and social (i.e., economic, political and cultural) causes of hunger and poor nutrition mentioned in this story.

Read the story adapted from Trainer Attachment 32A (Story of Bola).

Step 2 (20 min.)

Processing The Story

As a means of introducing a teaching activity that participants can use later on at their work sites, and as a way to get them to think about the many related causes of hunger and poor nutrition, play the game called "Another One".

Tell the participants that you will ask them a question about the story of Bola and they are to give an answer to that question and then "another one" and "another one". Ask for two participants to act as recorders and to list the answers given in terms of physical, biological, and social causes (see Trainer Note).

Play the game until participants have generated as many answers as they possibly can.

Tell participants to review the list of causes as well as any relevant information they obtained from visits to the community. Have them address these questions:

- What are other causes or underlying factors that have not been considered? (Please list)
- Which of the causes listed are most relevant to your programs and community? (Please circle)

Trainer Note

The list of causes related to malnutrition may include:

Biological	Physical	Social
Parasitic Infections	Low birth weight	Abrupt weaning
Measles	Dehydration	Bottle feeding
Malaria Diarrhea	Lack of sufficient protein/calories in the diet	Insufficient food products
Infections Compounding	Population pressures (i.e., overcrowded living conditions)	Inequitable food distribution
Malnutrition		Traditional beliefs/ practices
		Inadequate medical care
		Low priority of health/nutrition

Step 3 (20 min.)

Identifying Strategies for Preventing Malnutrition

Based on the list of causes the participants have identified as most relevant to their programs ask them to identify:

- the synergistic effect of disease, malnutrition and the social/economic environment which increases the risk and seriousness of illness and disease
- strategies for preventing malnutrition
- what role the PCV can take in carrying out any of these strategies (i.e., where the PCV can most appropriately intervene)
- ways to involve mothers, fathers, local health workers, health officials, and others in these strategies.

Trainer Note

Participants should understand that malnutrition is a cause of and caused by disease and low social and economic status.

You should list the answers to some of the questions on newsprint as the participants state them. Some strategies for preventing malnutrition include:

- Nutrition education
- Promotion of breastfeeding
- Use of nutritious weaning foods as a supplement to breastfeeding
- Gardening/small animal raising
- Adequate medical care, e.g. to treat parasitic infections

- Monitoring of child growth and development
- Pre-Natal care

Step 4 (25 min)

Appropriate Diets for Nutritionally At Risk Children

Divide the group into two or three small groups (depending on overall group size) and distribute to each group one child description based on Trainer Attachment 32B (Child Dietary Recommendation Exercise). Based on earlier readings and discussions, ask each group to recommend an appropriate diet for the child assigned to them.

Their recommendation should include:

- A description of the diet
- Estimates of the monetary cost of the food
- Estimates of the human time/cost it would require to appropriately feed and care for the child in the manner they have described
- An assessment of the cultural acceptability of the diet.

Tell the groups they have 15 minutes to discuss the child description and record their recommendations on newsprint for large group sharing.

Trainer Note

Encourage the participants to be as detailed and exact as they can in describing the appropriate diet and include such information as how much and when the child should be fed. Also, encourage them to think about the practicality of their dietary recommendations given food availability, food beliefs and preferences, who would be feeding the child (e.g., an older sister), people's financial situation, and so forth.

When developing their recommendations they should refer back to the information and handouts from Sessions 29-31 which contain specific dietary recommendations for use during weaning and in the treatment of specific nutritional deficiencies.

Step 5 (20 min)

Reporting on Nutritional Recommendations

Reconvene the group. Ask the small groups to present their nutritional recommendations following this format:

- Read the child description aloud and post it.
- Post your nutritional recommendations below the description and explain why you recommend this particular diet.

Allow about five minutes for each report. Be sure that each small group has a chance to report on one of their child descriptions.

Afterwards, have participants point out and discuss any recommendations which seem inappropriate, impractical, or incomplete.

Next ask the group to look at all the posted child descriptions and identify the child that is most likely to become seriously ill and possibly die. Ask them to explain the choice and predict what would happen if no nutritional interventions occurred. (If time allows, examine other cases similarly.)

Trainer Note

During the discussion, refer to the concept of the synergistic effect of diarrhea and malnutrition. Also stress the danger of hasty treatment (especially with protein) of Kwashiorkor. If necessary review Trainer Attachment 30A (Kwashiorkor) for the recommended dietary treatment.

Step 6 (15 min)

Health Counseling With Individuals

Distribute and have participants read Handout 32A (Health Counseling With Individuals). Briefly discuss the main points mentioned in the handout, especially the rules for counseling and different opportunities for counseling individuals and families.

Divide participants into groups of three. Ask them to practice nutritional counseling using the following format:

- The triad selects one of the child descriptions and recommendations from Step 4 and briefly discusses how to counsel the mother or father of this child.
- Each person in the triad selects one of the following roles: mother or father of a sick child, health worker, observer.
- The health worker counsels the mother or father. The observer assesses how well the health worker applies the rules for counseling and the information given about diet during and after diarrhea.
- The mother or father and the health worker comment on how they felt about playing their roles and the effectiveness of the counseling. The observer critiques the counseling practice.
- Members of the group exchange roles and repeat the counseling scenario, applying what they learned from the first practice.

Step 7 (45 min.)

Practice Counseling

Give the groups time to carry out their simulated counseling sessions. Circulate among the groups and contribute to the discussion and critique of the counseling.

Trainer Note

If possible, enlist the help of other trainers or health counselors to help you facilitate the small group critique to assure that participants get adequate and accurate feedback on their counseling efforts.

Step 8 (15 min)
Sharing Counseling Experiences

Reconvene the large group and have participants share problems encountered during the exercise. Ask other participants to offer suggestions to overcome the problems. Close the session with a discussion of ways participants can apply what they have learned about infant and child nutrition and nutrition counseling techniques.

Optional Step 9 (60 min)
Nutrition Rehabilitation

Tell the group that in this step they will be visiting a Nutrition Rehabilitation Center to observe and learn:

- How they are organized (buildings, staff, equipment, supervision, record keeping)
- Types of cases they treat (severe and uncomplicated PEM cases)
- Types of subjects or topics they teach (nutrition, meal planning, health, household budgeting, gardening, home craft skills)
- The work schedule
- Follow-up practices in the home or community.

Trainer Note

Introduce this step by telling the participants that up to now in this module attention has basically been focused on how to prevent malnutrition from occurring, and, if severe malnutrition does occur, how to recognize and treat the severe forms. Explain that another method of prevention that can be implemented during the early stages of malnutrition is nutrition rehabilitation. The main purpose of nutrition rehabilitation is to educate the mother through her active participation in the care and rehabilitation of her child.

If a visit to a Nutrition Rehabilitation or Mothercraft Center is not possible, you should invite the supervisor of this type of center to discuss his or her program with the group. Whichever way you choose to conduct this step, please review Joan Koppet's book Nutrition Rehabilitation for information on planning and operating a Nutrition Rehabilitation Center.

Session 32, Handout 32A: Health counseling with individuals

Counseling is one of the most frequently used health education approaches for helping individuals and families.

During counseling a person with a need and a person who provides support and encouragement (the counsellor) meet and discuss in such a way that the person gains confidence in his or her ability to find solutions to problems. Counseling relies heavily on communication and relationship skills.

Opportunities for arise whenever we work with individuals and families: with patients at the health centre, with pupils at school, or during a home visit, to name a few. Counseling should be part of the treatment and care given to a sick or troubled person. It is also an important aspect of prevention and health promotion because it helps people to understand what they can do, through their own efforts, to avoid illness and to improve their life.

Purpose of Counseling

Through counseling, an individual is encouraged to think about his problems and thus comes to a greater understanding of their causes. From this understanding that person will hopefully commit himself to taking action that will solve the problems. The kind of action that a person takes, will also be that person's own decision although guided, if necessary, by the counsellor.

Counseling means choice, not force, not advice. A health worker may think that his advice seems reasonable, but it may not be appropriate to the situation in which the individual lives. Through counseling, since the individual concerned takes the decisions, the solutions are more likely to be appropriate. An appropriate solution will be one that the person can follow with successful results.

Here is an example of the problems that arise when a person is advised and forced:

During a home visit one health worker saw a mother with three-week-old twins. The babies were so small that the health worker worried that they might not live. She scolded the mother for not coming to the clinic.

The health worker advised the mother to come to the hospital with the twins immediately, and stay there with them until they became bigger and stronger. The mother nodded her head in agreement. While she was packing her things, she began crying heavily.

A brother of the woman's husband came to see what the crying was about. The health worker explained, but the man became angry. He said there were many good reasons why this mother was crying. She was worried because if she stayed in the hospital, there would be no one to care for her other two children. She had recently moved to another town with her husband. She felt that there would be no one whom her children knew and trusted enough to stay with. Also the mother was crying out of fear of the health worker, who might refuse to help her in the future - she thought - if she did not agree to go to the hospital now.

Rules for Counseling

The health worker in this example had obviously not learned the techniques of counseling, otherwise he would have followed the simple rules below:

Relationships: A counsellor shows concern and a caring attitude. He pays attention to building a good relationship with the person he is trying to help from the beginning. People are more likely to talk about their problems with someone they trust.

Identifying needs: A counsellor seeks to understand a problem as the person sees it himself. The people must identify their own problems. The counsellor does not name the problem for them. The use of open comments will help here. The counsellor's task is to listen carefully.

Feelings: The counsellor develops empathy (understanding and acceptance, sorrow or pity). A counsellor would never say, "You should not worry so much about that". People naturally have worries and fears about their problems. A good counsellor helps people to become aware of their feelings and to cope with them.

Participation: A counsellor never tries to persuade a person to accept his advice. If the advice turns out to be wrong, the person will be angry and no longer trust this counsellor. If the advice is right, the person may become dependent on the counsellor for solving all his problems.

A counsellor helps a person to think about all the things affecting the problem, and encourages him to choose the solutions which are best for his particular situation.

Keeping secret: A counsellor will hear many personal and possibly embarrassing problems. This information must be kept secret from all other people, even from the person's relatives. If someone you are counseling discovers that you have told other people about the counseling session, that person will no longer trust you and will avoid you. A person may even get into trouble because of what the counsellor told others. A counsellor always respects the privacy of the people he is helping. He never reveals information unless he has been given specific permission.

Information and resources: Although a counsellor does not give advice, he should share information and resource ideas which the person needs to have to make a sound decision. For example, many people do not realize the connection between their behaviour and their health. A counsellor does not lecture, but he should provide simple facts during the discussion to help people have a clearer view of their problem.

All health or community workers can practice a counseling approach in their work. Parents and friends can be counsellors too. The important thing is that the health worker, teacher, father or friend be willing to listen carefully and encourage the person in need of advice to take as much responsibility as possible for solving his or her own problem.

Now that you have read about the rules for counseling, think again about the case of the mother with twins. How could the health worker have made a better beginning with this home visit? What would be some of the comments and questions she could have used to find out more about the mother's problems? How could the other relatives in the house have been involved? Can you think of possible alternative solutions to the problem?

DIFFERENT TYPES OF COUNSELING

Counseling with families

A person may need the help of his family to solve a problem. Counseling skills are useful whether working with one person or a whole family. When working with a family, we are dealing with more than one person, therefore there may be more than one problem, more than one need and surely more than one solution.

Also be aware that in families different people have different responsibilities and powers. The father, for example, may have the major say on how money is spent by the family. The mother may be the main decider on the types of food eaten. Grandparents influence the degree to which

families follow traditional customs. Find and talk to the right person for each problem. Also show respect to the recognized head of the household.

Counseling with children

In a clinic, a school or the community, you will find children with health, emotional or other problems. Counseling can be provided for them if they are old enough to talk.

It is better to talk to the child alone. Background information can be obtained from the parents first; then they can be politely asked to wait outside. Sometimes parents want to answer all the questions, they do not allow the child to speak for himself. The child may also fear saying certain things in front of his parents. The counsellor should explain to the parents that the child may speak more freely without others around.

Begin by talking about happy things. Ask the child about his favorite games, for example. Once the child is relaxed, begin talking about his problem. Let the child know that all he says will be kept secret. In this way he will trust you and speak freely. Always keep that promise. If parents, teachers, or others find out what the child said, he will fear the counsellor and will never let him help again.

Follow the counseling rules with a child as you would with an adult. The child will be able to learn much about his health from a good counsellor.

Home visits

Counseling can be done in the clinic or at school, but it is also helpful to visit the person at home. A health worker should visit all homes in his community regularly. If the village is small, with 10-15 houses, visits can be made at least once a fortnight. In larger villages or neighborhoods visits can be made monthly.

Here are some reasons for home visits:

- keeping a good relationship with people and families;
- encouraging prevention of common diseases,
- detecting and improving troublesome situations early, before they become big problems;
- checking on the progress of a sick person, or on progress towards solving other problems;
- educating the family on how to help a sick person;
- informing people about important community events in which their participation is needed.

Much can be learned from home visits. We can see how the environment and the family situation might affect a person's behaviour. Does the family have resources such as a well? What relatives stay in the house? Do they help or hinder the person's progress?

When people are in their own home they usually feel happier and more secure. We often find that people are more willing to talk in their own home than when they are at the clinic. At the clinic they may fear that other people will see them or overhear the discussion. They may tell more at home, because they feel safer there.

Nutrition demonstrations, for example, may be more useful if done in a person's home. There the health worker will be able to use the exact materials and facilities that the person must use. This will make the demonstration more realistic and make learning easier.

If you approach people with understanding, they will welcome you into their home. There you will find many opportunities or health education.

(Adapted From: WHO, Manual on Health Education in Primary Health Care Educational For Health For Health provisional version, pp. 106-109)

Session 32, Trainer Attachment 32A: The story of Bola

Bola was a large healthy baby when born. His mother breastfed him whenever he gave his "hungry cry". By six months Bola had his first tooth and seemed to be growing faster than his cousin, who was born three weeks before Bola. His mother was happy. Two of her four children had died during infancy, but this time Bola looked quite healthy and happy. She was proud and content and continued to breastfeed Bola. On occasion she would give him a millet gruel. He seemed to like it, but she didn't have time to make him a separate meal each day. She had a heavy schedule already; fetching water and wood, pounding millet, working in the fields, making one pot meals over a fire, going to the market, caring for her children, sweeping sand and animals out of the house.

During the second half of Bola's first year, his father died and the expenses of his funeral put the family greatly in debt. Bola's mother was forced to go to work for another family and had to leave her baby in the hands of his 9 year old sister. Bola was no longer breastfed and the only food given to him was that which was prepared for the rest of the family.

The food was spicy and Bola was not accustomed to anything but the rice. He would pick at the food but never ate much other than rice. His mother watched sadly, as he became thin and miserable. He was frequently ill and seemed to stop growing. This is what happened to her other two children. She was sure he was going to die, but accepted it as her punishment for being too proud and content with Bola when he was an infant.

Session 32, Trainer Attachment 32B: Child dietary recommendation exercise

Prior to this session, develop four to six descriptions of infants or young children under five. You will need two descriptions for each of the small groups working together during Step 4.

Make certain that the infant and child descriptions you create are significantly different, particularly in age and in nutritional and cultural practices that would affect that individual. Also be sure the descriptions are related to diarrhea so that participants have the chance to practice developing appropriate diets for children susceptible to, suffering from, or recovering from diarrhea.

The descriptions must include the following: child's name, age, ethnic group or religion (if appropriate), season of occurrence, any relevant medical or social history, physical appearance, and current health condition. Weight, height and body temperature are optional types of information you may want to include.

Use the example given below as a model for writing the descriptions:

Example of Child Description

Hawa

Hawa is a 1 1/2 year old girl. She is a Moslem. It is the middle of Ramadan this year. She is very thin except for her big belly. Her mother has just had another baby whom she is breastfeeding. Hawa has a five year old sister, Adama, with whom she shares food. Adama helps her mother care for the younger children and has told her mother that Hawa has had "poopoo" 5 times today.

After you have written the child descriptions you should also write some specific dietary recommendations for that child. These recommendations should not be considered the only acceptable answers. But possible ones. Be sure to take seasonal variations of foods into account when making your recommendations.

Suggested Dietary Recommendations for HAWK

In recommending a diet for Hawa the health worker should:

- Use the WHO or country specific diarrheal assessment and treatment chart to assess Hawa's diarrhea and to develop a treatment plan
- Take into account the host country's traditional feeding practices for an 18-month old child and
- With no further information available (i.e., how many stools a day is normal for Hawa, is her pulse faster than normal, is she irritable, etc.) other than the fact that she has 5 loose stools, the health worker should recommend that she be treated with ORS solution- for rehydration, and, when rehydration is complete, recommend that Hawa is breastfed and given small but frequent amounts of a multimix preparation.

It should be noted that the dietary recommendation given for this example will vary from country to country depending on the availability of foods and acceptability for this child's age.

Module 6: Communicable childhood diseases

Behavioral objectives

Session 33: Recognition of immunizable diseases

Session 34: Transmission of immunizable diseases

Session 35: Preventing and controlling the spread of disease

Session 36: Planning and implementing a childhood immunization clinic

Session 37: Visiting a health clinic

Session 38: Program considerations for malaria control

Session 39: The vicious cycles of diarrhea

Session 40: Dehydration assessment

Session 41: Rehydration therapy

Session 42: The impact of culture on diarrhea

Session 43: Implementing ORT in the village

Session 44: Logistics

Behavioral objectives

By the end of this module, participants will be able to:

1. Describe the causes and the major clinical symptoms of the six immunizable diseases, diarrhea and malaria as stated by guest lecturers or described in the course of their sessions.
2. List the vaccines, ages when given and sequencing of shots, that comprise the immunization schedule followed by the Host Country.
3. State the native words that host country nationals use to describe 3-5 common childhood diseases.
4. List the correct storage temperatures for DTP, measles and polio vaccine stored at the local health facility level.
5. Describe the groups as identified by the host country as being high risk groups for the treatment and prevention of malaria.
6. Define presumptive treatment for Malaria and drug prophylaxis.
7. Use the WHO Treatment Chart to assess the three stages of diarrhea/dehydration and determine appropriate treatment plans for each stage.
8. Prepare sugar-salt solution and ORS solution according to the formulas given in Session 41.
9. Calculate the amount of supplies to order based on past usage and balance in stock.

Session 33: Recognition of immunizable diseases

Session 33, Handout 33A: Common childhood diseases chart

Session 33, Handout 33B: Common childhood diseases

Session 33, Trainer Attachment 33A: Trainer's glossary

TOTAL TIME: 3 hours

OVERVIEW

An understanding of the epidemiology of a disease, that is, the patterns of disease occurrence in a given population and the factors that influence those patterns, is essential for designing appropriate and effective interventions and health education programs. Sessions 33, 34 and 35 form an interrelated series of activities designed to provide participants with this necessary understanding. Session 33 treats the recognition of clinical aspects of six vaccine-preventable diseases (measles, polio, diphtheria, pertussis, tetanus, and tuberculosis). Session 34 focuses on how these diseases are spread and what the local culture's knowledge, attitudes and beliefs are concerning the causes of these diseases. Session 35 examines the prevention and control of the

spread of these diseases. These three sessions are considered essential and should be treated as a unit.

During Session 33 participants learn to identify the signs and symptoms of the six diseases. They also practice making visual aids and formulating health talks which incorporate and or address the knowledge, attitudes and practices of the villagers for whom these health education materials are designed.

OBJECTIVES

- To describe and recognize the clinical signs and symptoms of measles, neonatal tetanus, diphtheria, pertussis (whooping cough), poliomyelitis (polio) and tuberculosis. (Steps 1, 2)
- To make a village level visual aid and develop a health talk about the signs and symptoms of some of these target diseases. (Steps 3, 4)

RESOURCES

Control of Communicable Diseases in Man

Handouts:

- 33A Common Childhood Disease Chart
- 33B Common Childhood Diseases

Trainer Attachments:

- 33A Trainer's Glossary

MATERIALS

Pens, newsprint, markers, WHO slides, and slide equipment.

PROCEDURE

Trainer Note

Prior to delivering these next three sessions you should obtain as much host country specific information regarding the knowledge, attitudes and practices of host country nationals vis a vis the diseases listed in Handout 33B (Common Childhood Diseases). You also need to obtain the Host Country National plan and schedule for the immunization of children against these diseases. If possible obtain information on the host country disease specific rates and compare them to those of other countries.

The local WHO or UNICEF office may be able to provide you with information on the disease specific rates of other countries of the world. The information presented under Method of Prevention and Contraindications in Handout 33B is based on the most current recommendations made by the World Health Organization and are the basic guidelines that most countries follow in developing their immunization schedules.

Step 1 (20 min)

Identifying Common Childhood Communicable Diseases

Distribute Handout 33A (Common Childhood Disease Chart). Ask the participants to try to recollect the illnesses that they had as a child and to list these illnesses, and for each one identify as much of the clinical picture as possible.

Trainer Note

This first step is an informal pretest designed to help you and the participants assess what they know about the six childhood immunizable diseases included in countries that have an Expanded Program of Immunization (EPI) policy. These diseases are:

- measles
- poliomyelitis
- diphtheria
- pertussis
- tetanus
- tuberculosis

Handout 33B (Common Childhood Diseases) provides you with information on these diseases.

Participants should view this step as a form of self-assessment and be informed that you do not expect them to be able to fill in all of the columns for all of the illnesses that they list. However, you should expect that they would be able to identify age at onset, signs and symptoms, method of treatment and prevention for some of the more common diseases. Tell them the information that they are unable to provide now will be learned by the completion of this unit.

Tell them that what they will be learning about these diseases in the two next sessions is essential information for designing effective health education programs. Please underscore the fact that they will not be expected to diagnose or treat children.

Collect these sheets at the end of Step 1 and tell them you will be using this information to assess what areas and diseases will be most important to emphasize in this unit.

See Trainer Attachment 33A (Trainer's Glossary) for definitions of terms that may be unfamiliar to the participants.

Step 2 (45 min.)

Information Pooling

Distribute Handout 33B (Common Childhood Diseases) and use as a discussion guide.

Show slides and pictures of the diseases you discuss and explain the signs and symptoms of each one. If known, give the host country incidence and/or prevalence rates for each disease as well as the case fatality rates. Discuss these rates and compare them with any you have obtained from other countries. Use the local names of these diseases whenever possible.

Trainer Note

Allow the participants 15 minutes to review the disease profiles in Handout B. If the group has trouble understanding any terms use Trainer Attachment 33A (Trainer's Glossary) to make clarifications.

Tell participants that the illnesses listed in this handout are diseases that are preventable through immunizations and are considered to be some of the major killers of children under the age of five.

Step 3 (60 min)

Developing Visual Aids and a Health Talk

Have the group break into three to four small groups (no more than five per group). Present or distribute any information you have gathered concerning the knowledge, attitudes and practices of individuals in the host country concerning the recognition, spread and treatment of some or all of these diseases. Ask participants to use this technical information and skills developed during the health education module to develop or adapt pictures and dialogues illustrating the signs and symptoms of one or two diseases. Tell them these pictures and the accompanying talks should be designed for use in teaching mothers or school children how to recognize the diseases. Explain that they will have about five minutes each to present the visual aids to their peers.

Trainer Note

You should obtain some visual aids that are used or displayed in the health clinics and ask the participants to adapt these pictures, charts, etc., using the techniques and information in particular from Session 24 (selecting and Using Visual Aids) and Session 26 (Adapting and Pre-testing Visual Aids). Try to arrange for the presence of some second or third year Volunteers or language trainers to advise the participants on the cultural acceptability of their health education activities.

15 Minute Break

Step 4 (40 min.)

Presentation of Visual Aids

Ask each group to give a five minute health presentation using the visual aids. After each presentation, have the participants and language trainers or second and third year Volunteers critique the visual aid and health talk using the criteria established in Session 26 (Adapting and Pre-testing Health Education Techniques and Materials) and Session 27 (Practicing and Critiquing Health Education Sessions).

Session 33, Handout 33A: Common childhood diseases chart

(NAME OF DISEASE)

AGE AT ONSET

INFECTIOUS

AGENT

MODE OF TRANSMISSION

MAJOR SIGNS SYMPTOMS & COMPLICATIONS

TREATMENT
METHOD OF PREVENTION AND CONTRAINDICATION

Session 33, Handout 33B: Common childhood diseases

MEASLES

<u>AGE AT ONSET</u>	Usually 5 and under
<u>INFECTIOUS AGENT</u>	Virus
<u>MODE OF TRANSMISSION</u>	Droplet spread or direct contact with nasal or throat secretions of infected person.
<u>MAJOR SIGNS SYMPTOMS & COMPLICATIONS</u>	Illness begins with fever, cough, runny nose and redness of the eyes. The mouth becomes sore. The fever peaks after 4-5 days. On the 3rd-4th day of illness a bumpy red rash (Violet-colored in many African children) appears on the head and spreads to the legs. It heals with scaling and does not usually last longer than a week. The most common complication of measles are middle ear infection, pneumonia, and diarrhea, which can lead to dehydration and/or malnutrition.
<u>TREATMENT</u>	Diarrhea with dehydration and/or malnutrition and pneumonia are the two most common causes of measles associated with deaths of children. Fluids and good nutrition can help prevent death from diarrhea and antibiotics can be used to treat some cases of pneumonia. There is no cure, however for the measles infection itself.
<u>METHOD OF PREVENTION AND CONTRAINDICATION</u>	Measles immunization in U.S. 1 dose after is 15 months of age. In Africa, 1 dose at 9 months of age. No contraindications. Mild fever, colds and diarrhea are not reasons to postpone immunizations.

NEONATAL TETANUS

<u>AGE AT ONSET</u>	4-21 days old
<u>INFECTION AGENT</u>	Bacterium
<u>MODE OF TRANSMISSION</u>	Tetanus spores are usually introduced into the body by the instrument used to cut the umbilical cord, or through infection of the unhealed umbilicus when it comes into contact with contaminated substances.

<u>MAJOR SIGNS SYMPTOMS & COMPLICATIONS</u>	Muscle spasms, lockjaw, 4-21 days after birth. Stops feeding at the breast.
<u>TREATMENT</u>	Treatment is not effective unless carried out in a well equipped hospital. Even then 40-60% of the infants with this disease die.
<u>METHOD OF PREVENTION AND CONTRAINDICATION</u>	For neonatal tetanus give two doses of tetanus toxoid 4 weeks apart to pregnant women if they have never been vaccinated. The initial dose should be given as early in pregnancy as practical. The second injection should be given at least 4 weeks later and preferably at least 3 weeks before delivery. If the second dose is not given then, be sure it is given at a postnatal visit (4 weeks later). During each subsequent pregnancy, the general principle is to give 1 booster dose. After 5 well documented immunizations with tetanus toxoid, the need for subsequent doses is very small. Neonatal tetanus can also be prevented by hygienic care of the umbilical cord.

PERTUSIS

<u>AGE AT ONSET</u>	The age of onset in children who live in densely populated urban areas, where whooping cough is endemic is usually less than 1 year. In rural communities where the disease usually occurs in epidemics, children throughout the 0-4 age range become ill.
<u>INFECTIOUS AGENT</u>	Bacterium
<u>MODE OF TRANSMISSION</u>	Droplet spread, direct contact with discharges from respiratory mucous membrane of children.
<u>MAJOR SIGNS SYMPTOMS & COMPLICATIONS</u>	<u>Cattarrhal Period</u> - Lasts 7-14 days. Cough and nasal discharge are present. <u>Paroxysmal Period</u> - Lasts, as a rule, 4-6 weeks. Bursts of coughing with no intake of breath are followed by a sudden inspiration with a characteristic "whoop" (though the "whoop" is sometimes not present, particularly in infants less than 6 months of age). These coughing spells produce sticky sputum and are often followed by vomiting. Whooping cough is associated with loss of appetite. It may lead to malnutrition.
<u>TREATMENT</u>	Antibiotics (of value only during incubation period) and nursing care can reduce the severity of some cases.
<u>METHOD OF PREVENTION AND</u>	DTP immunization given as soon as possible after 6 weeks of birth followed by 2 or more doses spread <u>at least</u> 4 weeks apart.

<u>CONTRAINDICATION</u>	This vaccine should not be given to a child who has had convulsions, encephalitis or shock associated with previous injections of this vaccine.
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PARALYTIC POLIO

<u>AGE AT ONSET</u>	Under three years
<u>INFECTIOUS AGENT</u>	Virus
<u>MODE OF TRANSMISSION</u>	Fecal-oral is the major route of transmission where sanitation is poor. During epidemics and where sanitation is good droplet spread is more important.
<u>MAJOR SIGNS SYMPTOMS & COMPLICATIONS</u>	Fever, stiff neck and sudden weakness of arm or leg. Senses of touch and pain are normal.
<u>TREATMENT</u>	Following an acute attack of polio, the patient should exercise the muscles he does have. Do not give injections to patients suffering acute stages of polio. There is no cure for the infection itself.
<u>METHOD OF PREVENTION AND CONTRAINDICATION</u>	The primary series of oral polio vaccine consists of 3 oral doses. The recommended age of 1st dose is as soon as possible after the child reaches 6 weeks of age. The minimum recommended interval between doses is 4 weeks. There are no contraindications. If a child is given polio vaccine during an episode of diarrhea an additional dose of vaccine should be given 4 or more weeks later.

DIPHTHERIA

<u>AGE AT ONSET</u>	Unimmunized children under 15 years of age.
<u>INFECTIOUS AGENT</u>	Bacterium
<u>MODE OF TRANSMISSION</u>	Contact with patient or carrier. Raw milk has served as a vehicle.
<u>MAJOR SIGNS SYMPTOMS & COMPLICATIONS</u>	Cold with fever, headache and sore throat. Bad breath. White or grayish membrane on one or both tonsils spreading to back of throat. Possible swollen neck.
<u>TREATMENT</u>	Seek medical help.
<u>METHOD OF PREVENTION</u>	DTP immunizations. Same series as for Pertussis.

<u>AND CONTRAINDICATION</u>	
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CHILDHOOD TUBERCULOSIS

<u>AGE AT ONSET</u>	Variable
<u>INFECTIOUS AGENT</u>	Bacterium
<u>MODE OF TRANSMISSION</u>	Exposure to bacilli in airborne droplet from sputum of person with infectious tuberculosis. Transmission in children is usually associated with close exposure to infectious cases.
<u>MAJOR SIGNS SYMPTOMS & COMPLICATIONS</u>	Productive cough, loss of weight, fever, general weakness.
<u>TREATMENT</u>	Use of INH. Good nutrition.
<u>METHODS OF PREVENTION AND CONTRAINDICATION</u>	BOG vaccination at birth.

Session 33, Trainer Attachment 33A: Trainer's glossary

In the event that the volunteers have difficulty understanding certain terms in this session, the following definitions/explanations should be provided:

Infectious Agent	The organism that must be present for a disease to occur. The agents are usually located in the biological environment.
Mode of Transmission	Any mechanism by which an infectious agent is spread through the environment or to another person. These mechanisms are:
	- Direct Transmission
	- Indirect Transmission
	1. Vehicle-borne
	2. Vector-borne
	3. Airborne

EPIDEMIOLOGY: DEFINITION AND BASIC RATES

The study of a community is not complete without data on the principal diseases which affect it. Planning of curative and preventive programmes, especially health education, must be based on

accurate knowledge of the existence and the importance of the different diseases in the community. For this reason, the nurse must know how to collect basic epidemiological data.

Epidemiology is the study of the diseases that exist in a population. It describes the factors arising from the agent (vector), the host itself and from the reservoir (natural source of the infection) which contribute to the transmission and survival of a disease in a population. Epidemiology is based on disease surveillance in the community. It can be a means for treasuring the impact of the nurse's activities on the health of the community through the annual calculation of disease incidence and prevalence rates. What do these terms mean?

Incidence Rate: This is the rate of new cases of a disease to appear in a population during a given period of time. Usually it is expressed per 100,000 inhabitants for one year, according to the following formula:

$$\text{Incidence Rate} = (\text{Number of new cases appearing in one year} \times 100,000) / (\text{The total population counted on the middle day of the year (July 1st)})$$

Example: If in a village of 5796 inhabitants, between January 1 and December 31 there were 60 new cases of viral hepatitis, one would have an

$$\text{Incidence rate} = 60/5796 \times 100,000 = 1030 \text{ cases}/100,000 \text{ per year.}$$

Prevalence Rate: represents the number of cases of a certain disease existing in a population *at the time of the study*. This figure is usually expressed per 100,000 persons

$$\text{Point Number of cases at the time of the study} \times 100,000 / \text{Prevalence Rate Population studied}$$

Example: If at a certain moment, in the same village of 5796 inhabitants there were 110 persons who were suffering from bilharzia, one would have a

$$\text{Prevalence Rate} = 110/5796 \times 100,000 = 1898 \text{ per } 100,000$$

Knowing how to calculate the incidence and prevalence rates of disease, the nurse should then be able to ask himself: What are the principal diseases for which members of the community come to the health centre for consultation? What is the frequency of various diseases in the population? Are they more frequent at different times of the year, in particular areas or neighbourhoods, or among particular groups children, pregnant women, elderly people? What are the *endemic diseases* in the community, i.e., the diseases that constantly scourge the population of the region? Are there *epidemics*, i.e., diseases which affect a farce number of the population acutely at the same time?

TABLE 9-1 Major Public Health Rates

Rates	Usual factor	Rate for United States, 1971
Rates Whose Denominators Are the Total population		

Crude birth rate = $\frac{\text{number of livebirth during the year}}{\text{average(midyear)population}}$	per 1,000 population	17.2 15.7 † (1973, preliminary)
Crude birth rate = $\frac{\text{number of livebirth during the year}}{\text{average(midyear)population}}$	per 1,000 population	9.3 9.4 ‡ (1973, preliminary)
Age-specific death rate = $\frac{\text{number of death among persons of a given age group in a year}}{\text{average (midyear) population in specified age group}}$	per 1,000 population	5-14 years - 0.4 65-74 years - 35.9
Caused-specific death rate = $\frac{\text{number of death among persons of a given age group in a year}}{\text{average (midyear) population}}$	per 100,000 population	Diseases of the heart - 359.5 Malignant neoplasm - 163.2
Rates and Ratios Whose Denominators Are Live Births		
Infant mortality rate = $\frac{\text{number of death in a year of children less than 1 year of age}}{\text{number of live births in same year}}$	per 1,000 live birth	19.1 17.6 ‡ (1973, preliminary)
Neonatal mortality rates = $\frac{\text{number of deaths in a year of children < 28 days of age}}{\text{number of live births in same year}} \quad ***$	per 1,000 live birth	14.2
Fetal death <i>ratio</i> = $\frac{\text{number of fetal deaths** during year}}{\text{number of livebirthssame year}}$	per 1,000 live birth	13.4
Maternal (puerperal) mortality rate =	per 100,000 or (10,000)	18.8 per

$\frac{\text{number of deaths from puerperal causes in a year}}{\text{number of live births same year}}$	live births	100,000
Rates Whose Denominations Are Cases Of That Disease		
Case Fatality rate = $\frac{\text{number of deaths from a disease}}{\text{number of cases of that disease}}$	%	Measures Disease Severity
Rates Whose Denominators Are Live Births And Fetal Deaths		
Fetal death rate = $\frac{\text{number of fetal deaths** during year}}{\text{number of livebirths and fetal deaths during same year}}$	per 1,000 live births and fetal deaths	13.3
Perinatal mortality rate † $\frac{\text{number of fetal deaths 28 weeks or more and infant deaths under 7 days of age}}{\text{number of live births and fetal deaths 28 weeks or more during the same year}}$	per 1,000 live births and fetal deaths	27.6

* From National Center for Health Statistics: Vital Statistics of the United States. Vol. I and II. US Govt. Printing Office, Washington D.C., 1974.

** Includes only fetal deaths for which period of gestation was 20 weeks or more was not stated. (US definition. Other countries may include deaths prior to the complete expulsion of extraction from its mother of a product of conception)

† This rate is for Perinatal Period I fetal deaths occurring 28 weeks or later and includes only deaths during the first week following birth)

‡ Monthly Vital Statistics Report 22:12, US Govt. Printing Office, Washington, D.C., 1974.

*** The denominator consists only of live births because registration is more complete for live births than deaths. If this were a true rate, however, the denominator should include all pregnancies.

(From: Benenson, Control of Communicable Diseases in Man. Colgate, S. et. al., The Nurse and Community Health In Africa. pp. 38-39; Mauser and Bahn. Epidemiology: An Introductory Text. Chapter 9.)

Session 34: Transmission of immunizable diseases

TOTAL TIME: 3 hours

OVERVIEW

In Session 34 participants gain technical information regarding ways in which the six immunizable diseases are spread. They also learn how the local culture views the ways in which these diseases are spread and then practice nonformal ways of giving advice that merge the two perspectives.

OBJECTIVES

- To explain the modes of transmission and infectious agents for each of the diseases. (Step 1)
- To formulate health messages that incorporate accurate technical information and cultural beliefs. (Steps 2, 3)
- To begin planning and developing materials for a puppet show and picture series. (Step 4)

RESOURCES

- Helping Health Workers Learn (pp. 22-26) - "Audio-Visual/Communications Teaching Aids" (Peace Corps Resource Packet p-8)

Handout:

- 33B Common Childhood Diseases (from Session 33)

MATERIALS

Newsprint, markers, materials for making puppets and props for a puppet show, paper, pens, cassette recorder, tapes of local music.

PROCEDURE

Trainer Note

This session will require considerable preparation. A principal activity of the session is developing health education lessons using puppets and pictures. To make maximum use of time, obtain the following props in advance:

- Cloth to serve as a stage covering
- Sticks, cardboard and colored Markers if you choose to make stick puppets
- Vegetables, carving knives and other materials (leaves, grass, rope and cloth) to make band puppets
- Glue
- Table which serves as a stage

- Tape recorder and local music

- Pictures developed in-country or by international organizations of one or several of the diseases covered in the session.

In preparing their health education presentations, remind participants to incorporate the guidelines and techniques they learned about and practiced during Sessions 23-27. If they have not yet worked through the health education module, postpone the puppet show and picture story activities until a later date in the training. Participants need the content information and skills practice provided during the module.

Determine from host country nationals if puppet shows are a culturally acceptable means of presenting health education lessons. If not, then adapt Step 4 by replacing the puppet show with either a drama, storytelling or other locally suitable activity.

Step 1 (15 min.)

Understanding How Diseases Are Spread

Have the group review the answers under the column headings "Mode of Transmission" and "Infections Agent" from Handout 33B (Common Childhood Diseases). Ask them if they have any questions pertaining to these two categories. Clarify any misperceptions they may have.

Step 2 (25 min.)

Cultural Factors Affecting the Spread of Disease

Have participants divide into small groups and distribute a written cultural belief description to each group (see Trainer Note below). Ask them to study the belief and then develop a short story (two minutes) which incorporates the local cultural beliefs with technical health advice regarding the cause and spread of disease. Read them the story provided in the Trainer Note as an example.

Trainer Note

You will need to find out about some local knowledge, attitudes or beliefs on how diseases are spread, and distribute this information in a handout to the small groups. The following is an example of a local belief:

"Midwives in Lardin Gabas traditionally rub dry dirt or cow dung onto the end of a baby's cord to prevent bleeding. The result is that babies often die of tetanus from the infection that enters through the cord. But people think the illness is caused by a certain kind of bird that lands above the baby. They believe that when the bird sings, the spirit of the baby flows out through the cord, causing the baby's body to stiffen with spasms".

A short story that health workers might tell to the people describes how a village midwife learned to prevent this form of infant death. After carefully washing her hands, she would tightly tie the baby's cord with clean strips of cloth, then cut it with a boiled bamboo knife. Later, when the bird landed over the baby and sang, the baby's spirit could not escape because the cord was tightly tied. (From: Helping Health Workers Learn, Chapter 22, p.6).

Step 3 (35 min.)

Presentation and Discussion of the Stories

Reconvene the large group and ask each group to present their story. After each story, have the group discuss its strengths and weaknesses.

Trainer Note

The following are a few examples of questions that can serve as discussion points (based on the story from Lardin Gabas):

- In what ways does this story help mothers and midwives gain greater understanding and learn healthier practices?
- In what ways does the story mislead or block their understanding of important causes of diseases?
- Which is more likely to help people gain control of the events that affect their health and lives, a magical or scientific understanding of causes and results?
- Does the story focus solely on the weaknesses of a local custom and the beneficial ways or strengths of modern (outside) ways?

(From: Helping Health Workers Learn, Chapter 22, p. 6)

15 Minute Break

Step 4 (90 min.)

Preparing a Health Education Lesson

Inform the participants that in this step they will begin to develop a health education lesson, using either puppets, storytelling, drama or a picture series (e.g. flipcharts, flannelgraphs etc.), to communicate to mothers or school children the importance of timely and complete immunizations for children under the age of five.

Ask them to form two groups; one group to develop a puppet show and the other to develop a health talk using pictures. Tell them they have the rest of this session (90 minutes) and part of the next session to work.

Trainer Note

Tell the group preparing the picture/flipchart presentation that their target audience will consist of mothers attending a health education class. The group preparing the puppet show should aim their presentation towards school children ages 8-12.

Explain that the main objective of their presentation is to convey important information on childhood illnesses that would motivate members of the community to come unify to adopt beneficial health practices. They should include information on:

- signs and symptoms of the diseases
- modes of transmission
- methods of prevention

Tell them that staff members and other outside guests will be invited to attend their presentations. Give the prearranged time and date (Session 35).

Session 35: Preventing and controlling the spread of disease

Session 35, Handout 35B: Who recommended immunization schedule

Session 35, Handout 35A: Trainer Attachment 35A: Levels of prevention

TOTAL TIME: 3 hours

OVERVIEW

As the last in the series of sessions on immunizable diseases, Session 35 focuses on preventing disease through primary, secondary, and tertiary interventions. Participants examine the WHO and host country immunization schedule. Then they complete the final preparation on their puppet show, picture story or other appropriate health education activity, and make their presentations.

OBJECTIVES

- To compare the WHO and the host country immunization schedules. (Step 2)
- To design and conduct a puppet show and picture story that address the issues of immunizable disease studied during Sessions 33, 34, and 35. (Steps 4, 5)

RESOURCES

Technical Health Training Manual (Peace Corps)

Handouts:

- 27B Session Plan Worksheet (from Session 27)
- 27C Evaluation of Practice Session (from Session 27)
- 33B Common Childhood Diseases (from Session 33)
- 35A "MOH Immunization Schedule" (to be prepared by trainer)
- 35B WHO Recommended Immunization Schedule

Trainer Attachment:

- 35A Levels of Prevention

MATERIALS

Newsprint and markers; materials, props and room arrangements for the puppet show and other activities.

PROCEDURE

Trainer Note

In advance of this session, invite language trainers, community members, and other Host Country Nationals to attend the health education presentations.

Step 1 (15 min)

Method of Preventing Disease

Once more, ask the group to look at Handout 33B (Common Childhood Diseases) and to study the information under the column heading "Treatment Method". Ask the participants if they need any clarifications.

Step 2 (25 min)

Country Specific Immunization Schedule

Distribute a copy of Handout 35A, (MOH Immunization Schedule) and Handout 35B (WHO Recommended Immunization Schedule) to each participant. Have them review the MOH schedule and compare it with the WHO recommended schedule in Handout 35B. Discuss any differences between these two schedules.

Trainer Note

What is essential to stress about the immunization schedule given in Handout 35B (WHO Recommended Immunization Schedule) is that this schedule lists the minimal age for the first dose and the minimal interval between successive doses recommended by the World Health Organization. Based on these recommended minimums, countries may develop an immunization schedule that gives different ages for receiving the first dose of vaccine. It is important that Volunteers follow immunization schedule of the host country. Discuss these points as well as the following factors that influence the extent of vaccination coverage in the host country:

- Logistical factors (E.g., accessibility of health facilities providing immunizations, shortage of health personnel, facilities, transportation, vaccines and equipment.)
- Medical philosophies (E.g., health professionals believe that maternal antibodies for certain diseases may interfere with a child's development of protective antibodies. Therefore, the child will need to be revaccinated, which is not cost-effective.)
- Selection of injectable polio vaccine instead of oral polio vaccine.
- Compliance problems (i.e., taboos or fears that affect whether or not people initiate and complete their vaccination series.

Step 3 (20 min)

Defining Levels of Prevention

Based on the information presented in Trainer Attachment 35A (Levels of Prevention) present a brief lecturette defining primary, secondary, and tertiary interventions.

Trainer Note

This presentation should emphasize primary prevention via immunization. Discussion of secondary prevention should incorporate the treatment section of Handout 33B (Common Childhood Diseases) and include the local remedies or treatments. Tertiary prevention pertains mainly to residual paralysis from contracting polio and in this case includes the rehabilitation of

paralyzed limbs secondary to polio.

Step 4 (60 min.)

Final Preparation for the Health Education Activities

Have the participants divide into their two work groups for the health education activities. Ask them to incorporate the new information they've gained in this session into their scripts. Tell the groups they have the rest of the session to finish their preparations and to pretest their activities with members of the host country training staff.

Trainer Note

While making the final preparations for their health education activities, ask the participants to review and make use of the Evaluation Form from Session 27 (Handout 27C).

Pre-arrange with participants the time and place of the health presentations. Whether it happens immediately at the close of the session or later in the evening will depend on your particular situation.

Prior to curtain time, prepare some after show refreshments and make sure seating is arranged for the invited guests. Also, ask a member of the group to serve as "emcee" for the activities.

15 Minute Break

Step 5 (xx min.)

Present the Health Education Lessons

Ask the emcee to welcome the guests and have one member of each team describe the setting and target groups for whom the activities were developed. At the end of the presentations, have the emcee thank the audience for coming and invite them to stay for refreshments.

Trainer Note

Either after the guests have gone, or at the beginning of the next morning's session, ask participants to process the experience of designing and implementing the health activities. Be sure they discuss how they felt their presentations went and what suggestions for improvement they have. Ask them to discuss how useful the techniques are for presenting health education information.

Session 35, Handout 35B: Who recommended immunization schedule

Vaccine	Number of Doses	Minimal Age for First Dose	Minimal Interval between Successive Doses
BCG	1	at birth	

DPT	3	6 weeks of age	4 weeks apart
OPV	3	6 weeks of age	4 weeks apart
Measles	1	9 months of age	
Tetanus Toxoid	2	For use in prevention of neonatal tetanus	4 weeks after first dose
		First dose at first contact with susceptible women.	

The target population for tetanus toxoid is usually pregnant women. See Handout 33B for further recommendations.

(Adapted From: CDC, CCCD Draft Training Materials.)

Session 35, Handout 35A: Trainer Attachment 35A: Levels of prevention

With *prevention* a dominant theme, it may be well to elaborate upon this word. In a narrow sense, prevention means inhibiting the development of a disease before it occurs. However, in current usage, the term has been extended to include measures which interrupt or slow the progression of disease. For this reason several levels of prevention are said to exist. *Primary* prevention (appropriate in the stage of susceptibility) is prevention of disease by altering susceptibility or reducing exposure for susceptible individuals; *secondary* prevention (applied in early disease, i.e., pre-clinical and clinical stages) is the early detection and treatment of disease; *tertiary* prevention (appropriate in the stage of advanced disease or disability) is the alleviation of disability resulting from disease and attempts to restore effective functioning.

Primary Prevention

Prevention of the occurrence of disease consists of measures which fall into two major categories: general health promotion and specific protective measures. *General health promotion* includes provision of conditions at home, work, and school which favor healthy living, e.g., good nutrition, adequate clothing, shelter, rest, and recreation. It also encompasses the broad area of health education, which includes not only instruction in hygiene, but also such diverse areas as sex education, anticipatory guidance for children and parents, and counselling in preparation for retirement. *Specific protective measures* include immunizations, environmental sanitation (e.g., purification of water supplies), and protection against accidents and occupational hazards.

The past successes of public health in developed countries have been accomplished largely by primary of infectious disease through environmental manipulation and immunization. The most pressing unsolved problems in these countries today are chronic diseases whose prevention requires modification of deeply-rooted individual behavior, such as dietary patterns, physical activity, and the use of alcohol, tobacco, and other drugs. Equally obdurate and important is the problem of deaths and injuries from accidents, especially motor vehicle crashes. Future efforts at primary prevention of these conditions will probably focus both on attempts to influence

individual behavior and on environmental controls (e.g., air-bags in cars, altered composition of dietary fats) which will in part shift health-related decisions from the individual to social institutions.

Secondary Prevention

With early detection and prompt treatment of disease, it is sometimes possible to either cure disease at the earliest stage possible or slow its progression, prevent complications, limit disability, and reverse communicability of infectious diseases. On a community basis, early treatment of persons with infectious diseases (e.g., venereal infections) may protect others from acquiring infection and thus provides at once secondary prevention for the infected individuals and primary prevention for their potential contacts. Examples of diseases in which efforts at control center primarily around secondary prevention are diabetes, *in situ* carcinoma of the cervix, and glaucoma.

As is true of primary prevention, secondary prevention is a responsibility of both physicians in private practice and those in community posts. Health departments and other community agencies often conduct screening surveys in which asymptomatic persons are tested to uncover disease in its early stages.

Tertiary Prevention

This consists of *limitation of disability* and *rehabilitation* where disease has already occurred and left residual damage. Physiotherapy to an affected limb to restore motion and prevent contractures exemplifies measures for the limitation of disability.

Rehabilitation is the name given to attempts to restore an affected individual to a useful, satisfying, and, where possible, self-sufficient role in society. Its major theme is maximal utilization of the individual's residual capacities, with emphasis on his remaining abilities rather than on his losses. Since modern rehabilitation includes psychosocial and vocational as well as medical components, it calls for good teamwork by people from a variety of professions, as shown in Figure 1-1. It may also require extensive physical facilities and sufficient funding to provide a variety of services over a prolonged period of time.

Until the occurrence of death, it may be possible at each stage of the evolution of a disease process to apply appropriate measures to prevent continued progression and deterioration of the patient's condition. The different levels of prevention can be fully understood only in relation to the natural progression or natural history of disease. The clearer our understanding of the natural history of a disease, the greater may be the opportunities for developing effective points of intervention. The interrelations between natural history and levels of prevention will be illustrated by a specific example, stroke.

Session 36: Planning and implementing a childhood immunization clinic

Session 36, Handout 36A: Sample task analysis work sheet

Session 36, Trainer Attachment 36A: Setting up work stations

Session 36, Trainer Attachment 36B: Task analysis for organizing immunization activities
Session 36, Trainer Attachment 36C: Immunization cards assessment

TOTAL TIME: 4 hours

OVERVIEW

In the previous three sessions participants learned how vaccine preventable diseases are spread and identified points at which they could intervene to reduce the incidence/prevalence of the disease. In this session they learn how to organize an effective immunization clinic. A range of services and specific skills are necessary to provide those services to families, to communities, and to and from health centers. Sessions 36 and 37 are an interrelated series of activities designed to provide the necessary knowledge and skills that participants will need to work effectively in an immunization clinic setting. In Session 36 the participants learn about the cold chain, design floor plans for two different clinic settings, review health records and conduct a simulation of a clinic where immunizations are being offered. Session 37 provides them with the opportunity to visit a clinic where immunization activities are being conducted as well as the time to assess what they have reamed in terms of how they may best apply this knowledge and information to their work in the field.

Sessions 36 and 37 should be considered as one unit.

OBJECTIVES

- To list eight tasks necessary for conducting an immunization clinic. (Steps 1, 2)
- To explain how and why the cold chain is maintained. (Steps 4, 6)
- To demonstrate the ability to properly screen children for immunizations. (Step 8)

RESOURCES

Handout:

- 36A Task Analysis Worksheet

Trainers Attachment:

- 36A Setting Up Work Stations
- 36B Task Analysis for Organizing Immunization Activities
- 36C Immunization Cards Assessment

MATERIALS

Slide or movie projector, cold chain slides or film, chairs, vaccine equipment, health posters.

PROCEDURE

Trainer Note

Prior to this session you should invite an MOH representative responsible for maintaining the cold chain and vaccination equipment to present a lecture on his or her duties with an emphasis

on the difficulties encountered in ensuring that vaccines are potent and equipment has been properly sterilized. You should also arrange for participants to visit a health clinic where immunizations are given. The objective for this visit is discussed in Session 37.

Step 1 (20 min.)

Introducing the Tasks Involved in Implementing An Immunization Session

Open the session by asking participants to individually write down eight tasks that need to be done in the planning and implementation of an Immunization clinic at a health center or outreach health post. Ask them to identify the order in which these tasks should be done. Tell them they have 10 minutes to develop this list.

After ten minutes select someone to record their list of tasks on the board. Ask the large group to modify the list until they reach a consensus on the specific steps and the order in which they are performed.

Trainer Note

Based on their knowledge of immunizable diseases, any prior visits to a local health center, and previous academic experience, participants should be able to come up with a series of sequential tasks similar to the ones below.

- prepare equipment
- maintain vaccines
- organize site for immunization activities
- screen children and pregnant women
- provide health information to mothers
- prepare vaccine for use
- administer vaccines
- complete records and reports

If they have trouble coming up with this list, provide the missing task and discuss with them its importance.

Step 2 (10 min.)

Introducing the Task Analysis Worksheet

Distribute Handout 36A (Task Analysis Worksheet) and have the group briefly discuss why it is important to break the tasks into subtasks and to identify what knowledge, skills and attitudes are necessary to carry out the task. Tell the group that they should use this form as a guideline for learning during this session and that at the end of this unit they should be able to list the subtasks and the corresponding knowledge, skills and attitudes that are needed to plan and carry out an effective immunization program. Explain that for the next hour and a half they will focus on the first two tasks-preparing equipment and maintaining vaccine.

Trainer Note

You may choose to distribute one handout for each of the tasks listed in Step 1 or simply write on newsprint an example of the form found in the handout and ask the participants to make

copies of it on notebook paper. The focus here is not so much on the process of doing a task analysis but rather on the specific skills the health worker must have in order to deliver or supervise delivery of immunizations. If you feel that a session on how to conduct a task analysis would be helpful, please refer to Session 47 (Task Analysis) in Module 7.

Step 3 (40 min.)

Preparing Equipment and Maintaining Vaccine

Introduce this step by explaining that vaccines need special care because if they are damaged, they can no longer protect people against disease. Tell them that there are four ways to care for vaccines properly:

- keep them cold (at temperatures between +4° and +8° C)
- distribute them efficiently
- look after equipment
- protect them from the sun

Tell them that during the next 30 minutes they will learn about the cold chain - what it is, why it is important and how to maintain it.

Introduce the speaker who has been invited to deliver a lecture-demonstration on sterilization techniques, equipment maintenance and maintaining the cold chain. If a person with such expertise can not attend, show a film on the Cold Chain or the slide show, "Looking After Your Vaccine" (produced by and available through WHO).

Following the presentation on the cold chain have the group discuss and list what subtasks, along with the appropriate skills, need to be accomplished in order to obtain, prepare and properly maintain equipment and vaccines. Ask them to identify where there might be a role for PCVs in this chain of activities.

Trainer Note

This step will be most effective if an MOH representative is available to deliver a talk on how the cold chain operates in the host country and the difficulties he or she has encountered in maintaining it. The guest speaker can also display the materials health personnel use in preserving the cold chain.

During the discussion on the cold chain stress that the temperature of the refrigerator should be kept between +4 and +8 degrees centigrade.

Step 4 (50 min)

Practicing With Cold Chain Equipment and Vaccines

To ensure that participants have a good understanding of how to preserve the cold chain, have them divide into three groups and practice with the equipment and vaccines at the stations that have been set up. Explain that they should read and follow the directions found at each work place and rotate among the stations until they have completed all tasks. Ask them to add to their task analysis chart all of the sub-tasks that they identify and carryout in this step. Review these subtasks at the end of the exercise.

Trainer Note

These situations should be prepared in advance; see Trainer Attachment 36A for the setup. The trainers and guest speaker should be at each station to observe the participants while they work, to answer questions, and to assist with any problems they may have. Ideally, the guest speaker will provide samples of the equipment that is used in the country.

In practicing the task of maintaining the vaccine, participants should identify a number of sub-tasks including:

- Check to see that the temperature of the refrigerator is between +4 and +8° degrees Centigrade and record the temperature.
- Obtain enough cold-chain equipment (including ice packs or ice) to store vaccine and diluent at appropriate temperature.
- Remove the oldest vaccine first (stored on the left side of the refrigerator).
- Recheck that the types and amounts of vaccine and diluent removed are what you need.
- Check expiration date on each vial of vaccine. If date has passed, do not use the vaccine unless instructed to do so by your supervisor.
- Recheck refrigeration temperature and record two times daily.
- Mark the vaccine vial to indicate it has been taken out for clinic.
- Pack the vaccine and diluent into a cold-chain container.

To return vaccines to refrigerators:

- Discard vials which already have 2 checkmarks.
- Mark the vials with a checkmark or the date to show that they have been removed from the refrigerator.
- Put the returned vials on the left-hand side of the refrigerator.
- Recheck the refrigerator temperature and record.

(From CDC/CCCD Draft Training Materials)

10 Minute Break

Step 5 (25 min)

Organizing the Site for Immunization Activities

Under the task "Organize Site Immunization for Activities" ask for a volunteer to write down the following tasks that should be accomplished:

- providing health information for mothers
- conducting registration

- measuring children screening children and pregnant women
- treating illness
- delivering immunization
- verifying that immunizations and essential health information have been provided

Ask the participants to think for a few moments, and to suggest what knowledge, skills and attitudes are needed to accomplish these tasks.

Trainer Note

Examples of some of the knowledge and skills that the participants should come up with can be found in Trainer's Attachment 36B. If the participants seem to be having trouble with this step, ask them to think about the information they received in the previous sessions concerning the signs and symptoms of childhood diseases and methods for their control and prevention along with other general information from their sessions on health education and factors affecting health.

Step 6 (15 min)

Organizing Vaccination Stations

Based on their understanding of what sub-tasks ideally should be accomplished during a "mamas" visit to a clinic, ask the participants to work in two small groups to design and draw what they would feel is an ideal arrangement for vaccination stations that are designed for handling small, medium and large sized groups.

Step 7 (15 min)

Presenting Their Clinic Floorplans

Ask each group to present their floorplans and to explain what will happen at each station. After each presentation, have the other groups analyze the plans in terms of:

- entrances and exits
- enclosures to prevent the entering of people/animals, etc. who will not be serviced by the clinic
- placement of vaccine (i.e., sun vs. shade if outdoors)
- numbers of persons allowed in room at one time
- arrangement of tables and flow patterns
- waiting time

Step 8 (35 min)

Assessing Immunization Records

Ask participants to form three groups and distribute examples of immunization records found in Trainer Attachment 36C. Using the information they obtained in Sessions 33-35 pertaining to the host country national immunization schedule and contradictions for vaccines, ask the participants to spend 20 minutes assessing the records in terms of:

- what immunizations are needed to be given on that date
- when the child should return for another vaccination
- the intervals between doses of DTP and polio and tetanus toxoid for pregnant women (i.e., at least 4 weeks between doses).

After 20 minutes ask the group to recovene and ask one person to share their groups assessments of these records. Ask if the two groups agree with the stated assessments and discuss any differences in opinion.

Trainer Note

The immunization records distributed should be those used in the host country.

Step 9 (20 min.)

Preparing to Visit an Under-Fives Clinic

Inform the group that during the next session (or at some other pre-arranged time) they will visit an Under-Fives (or maternal child health) clinic for the purpose of observing clinic personnel at work carrying out same or all of the various tasks that have been discussed in this session.

Pass a hat around and ask the participants to draw one slip of paper from the hat. Tell them that during their clinic visit they will be responsible for observing the person(s) conducting the task listed on their slip of paper. Have participants with the same tasks form small groups. Distribute copies of the pages from Trainer Attachment 36B (Task Analysis for Organizing Immunization Activities) which pertain to the respective tasks each group will be observing. Tell participants there will be time to discuss or clarify any problems or questions concerning their assignments immediately prior to the clinic visit.

Trainer Note

Prior to this step prepare slips of paper for each of the participants which contain one of the eight tasks mentioned and discussed in Step 1. Place these slips in a hat that you pass around in this step. Also, copy or develop handouts from Trainer Attachment 36B which pertain to the personnel roles and tasks they will be observing at the clinic.

Session 36, Handout 36A: Sample task analysis work sheet

Sample task analysis work sheet

Category of Worker:			
The Task:			
Subtasks	Knowledge	Skill	Attitude

		s	s

(From: Abbatt. F.R. Teaching for Better Learning, p. 22)

Session 36, Trainer Attachment 36A: Setting up work stations

Clean syringes and needles

Sterilize equipment

Cold box

Vaccine carrier and flask

Ice packs

Attached are forms that list the equipment and the skills that the participants should practice at each station. Prior to this session you should assemble all the necessary equipment and post these job aids at 3 separate stations. To ensure that the participants are correctly carrying out these tasks, one trainer should be posted at each station and assist or answer any questions that may arise.

A sign identifying what will be done at each station should be posted. For example:

Station Number 1 - Cleaning and Sterilizing Equipment

Station Number 2 - Packing and Maintaining Vaccines

Station Number 3 - Checking and Maintaining the Refrigerator.

Clean syringes and needles

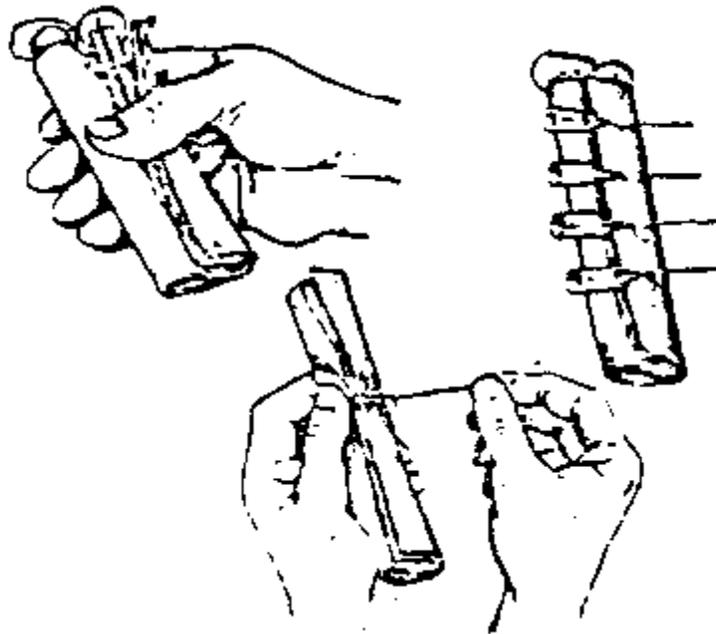
1. Rinse (flush) with water immediately after use.
2. Soak in a container filled with water.
3. Remove any dirt with clean piece of cotton wool or gauze.
4. Flush water through each needle several times.
5. Take the plungers out of the syringes.
6. Take the needles off the syringes; clean the hub of the needle.
7. Rinse the syringes and needles in clean water only. Do not use detergent; it is hard to get all of the detergent out, and any that stays in a syringe or needle can weaken the vaccine.
8. Let everything dry.

9. Run the point of the needles through cotton wool or gauze to check for blunt or barbed needles. Sharpen blunt or barbed needles. Discard needles that are seriously barbed or bent.

10. Wrap each syringe to prevent breakage during transport and sterilizing.

- Wrap barrel of syringe in one layer of gauze.
- Lay plunger beside it.
- Wrap both in two or more layers of gauze.
- Push needles into small rolls of gauze to protect points.

Clean syringes and needles



Sterilize equipment

If a saucepan is used:

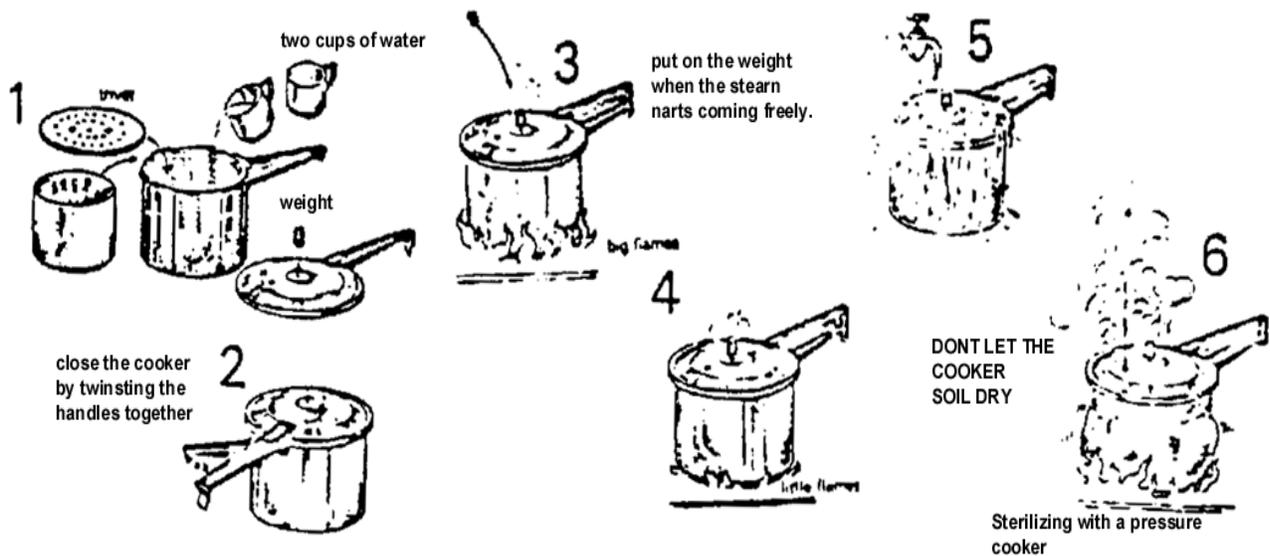
1. Put the clean syringes, needles, forceps, and other items needing sterilizing into a saucepan.
2. Pour in enough water so that everything is covered by at least 2 cm of water.
3. Cover with lid. Place container on burner and light the burner.
4. Bring water to a boil and let water boil 20 minutes.
5. Turn burner off.
6. Lift out syringes and needles and place them with a sterile forceps in a sterilized tin. Put lid on the tin.

7. Do not use syringes and needles until they are cool.

If a sterilizer or pressure cooker is used:

1. Put trivet (metal shelf) in bottom of cooker.
2. Place wrapped glass syringes and needles on trivet
3. Fasten lid securely on cooker
4. Heat until steam comes out of the vent. Put the weight on top of the vent.
5. Turn heat down. Cook for 15 minutes.
6. Remove cooker from the stove. Cool the cooker. DO NOT remove the weight until the cooker is cool.
7. Take the lid off. Lay it down, bottom up.
8. Place the bundled clothe containing the syringes and needles on the lid of the sterilizer.
9. Pour the water out of the sterilizer.
10. Replace sterile equipment if another sterile container is not available for them.
11. Replace lid.

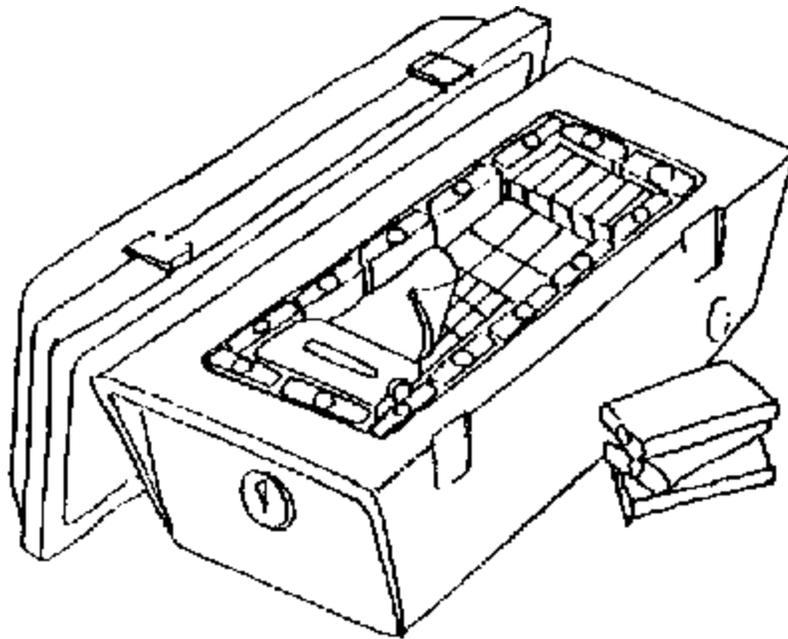
Sterilizing with a pressure cooker



DO NOT TOUCH THE STERILIZED EQUIPMENT. If anything falls out of the sterilizer or is touched by hands, it will no longer be sterile and must be reesterilized. Secure the lid of the container with the sterilized equipment to keep the instruments inside sterile.

Cold box

Vaccine Cold Box



Use to:

- Collect large quantities of vaccine from health centre
- Transport large quantities of vaccine by vehicle to outreach sites
- Carry vaccine for several days

To pack:

- Place fully frozen ice packs side-by-side against the inside walls and floor of the cold box.
- Stack vaccine and diluent in the box.
- Place plastic foam or packing material between DPT vaccine and the ice to prevent vaccine from becoming frozen.
- Place ice packs over the top of the vaccine and diluent if there is room, so the vaccine is completely covered.
- Place a small bag of ice blocks on top of the ice packs. These ice blocks will be used to keep vaccines cool during vaccination session.
- Secure the lid tightly.

To keep in good condition when not in use:

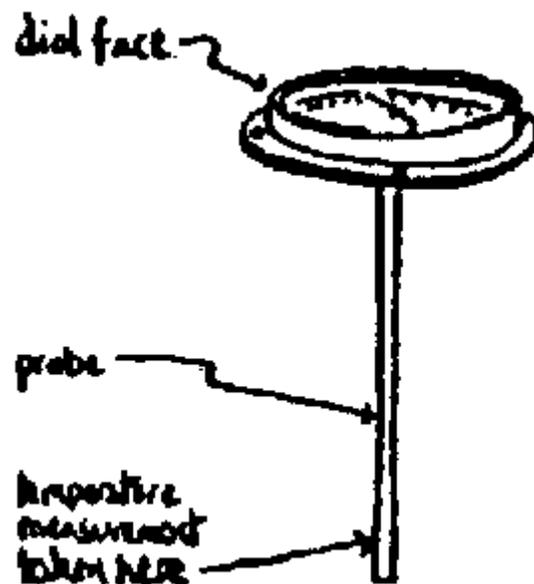
- Leave the lid open after each use so that the inside will have a chance to dry out.
- Examine inside and outside surface after each use for cracks; repair immediately.
- Paint outside surface white when it becomes dull or worn.

- Check that the rubber seal around the lid is not broken; if so, replace it immediately.
- Adjust the tension on the latches so that the lid closes tightly.
- Oil hinges and locks routinely.

To monitor temperature:

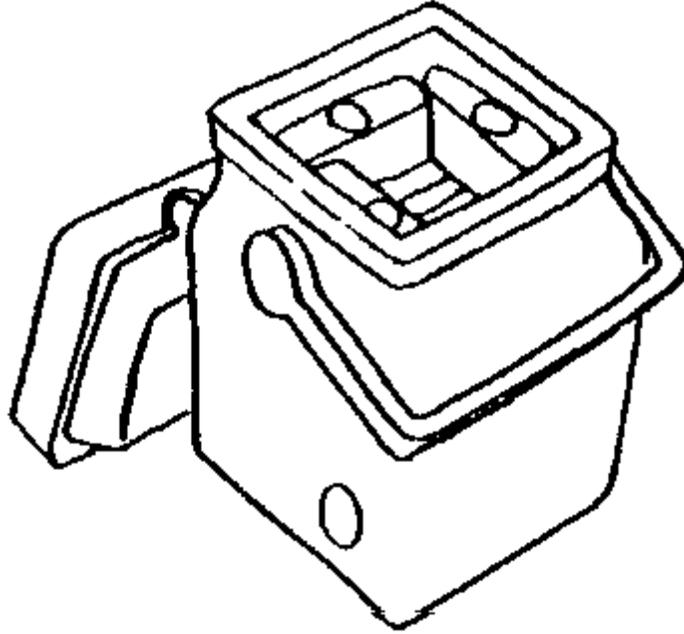
For cold boxes or carriers with a cold life of one week which are being used by mobile teams in the field, dial and probe thermometers can be fitted through the insulated wall of the container (see Figure 4). They provide warning that the ice in all the icepacks has melted and that the temperature is no longer steady. The temperature will rise at approximately 1 to 1.5°C per hour when the ice has melted, and this early warning enables the 5 hours or so after the ice has melted to be used to find more frozen icepacks.

Figure 4



Vaccine carrier and flask

Vaccine Carrier



Use to:

- Collect small quantities of vaccine from health centre
- Transport small quantities of vaccine by vehicle, by bicycle, or by foot to outreach sites
- Carry vaccine for only one day

Note:

Use a flask only if a vaccine carrier is not available. A flask is an insulated container, often round in shape like a bottle, which is not primarily design to carry vaccines. Flasks tend to break easily, and may not be sufficiently insulated.

To pack:

- Place fully frozen ice packs around the inside walls of the carrier or flask.*
- Stack vaccine and diluent in the carrier.
- Place plastics foam or packing material between DPT vaccine and the ice to prevent them from touching.
- Place ice packs over the top of the vaccine and diluent if there is room.
- Secure the lid tightly.

*Note:

If ice packs do not fit inside carrier or flask, place vaccine and diluent into carrier first. Then place blocks of ice sealed in plastic bags on top.

To keep in good condition when not in use:

- Leave the lid open after each use so that the inside will have a chance to dry out.
- Clean inside after each use.
- Examine inside and outside surfaces after each use for cracks; repair immediately.
- Paint outside surface white when it become dull or worn.
- If adjustable latches are used to fasten the lid, adjust their tension so that the lid closes rightly.
- Keep plastic carriers out of direct sunlight, as this will heat them and may cause the plastic to warp or crack.
- Do not drop carriers and flasks as this can damage them.

Ice packs

Use to:

Keep vaccines cool in cold boxes, carriers, and flasks

To keep vaccines cool with ice packs:

- Freeze pack completely.

If your pack contains 1/2 litre of water, freeze it at least the following length of time before using:

<u>Type of Freezer</u>	<u>Days</u>
Freezing compartment of gas/kerosene absorption refrigerator*	2
Freezing compartment of domestic electric compression refrigerator*	1
Electric freezer	1-2

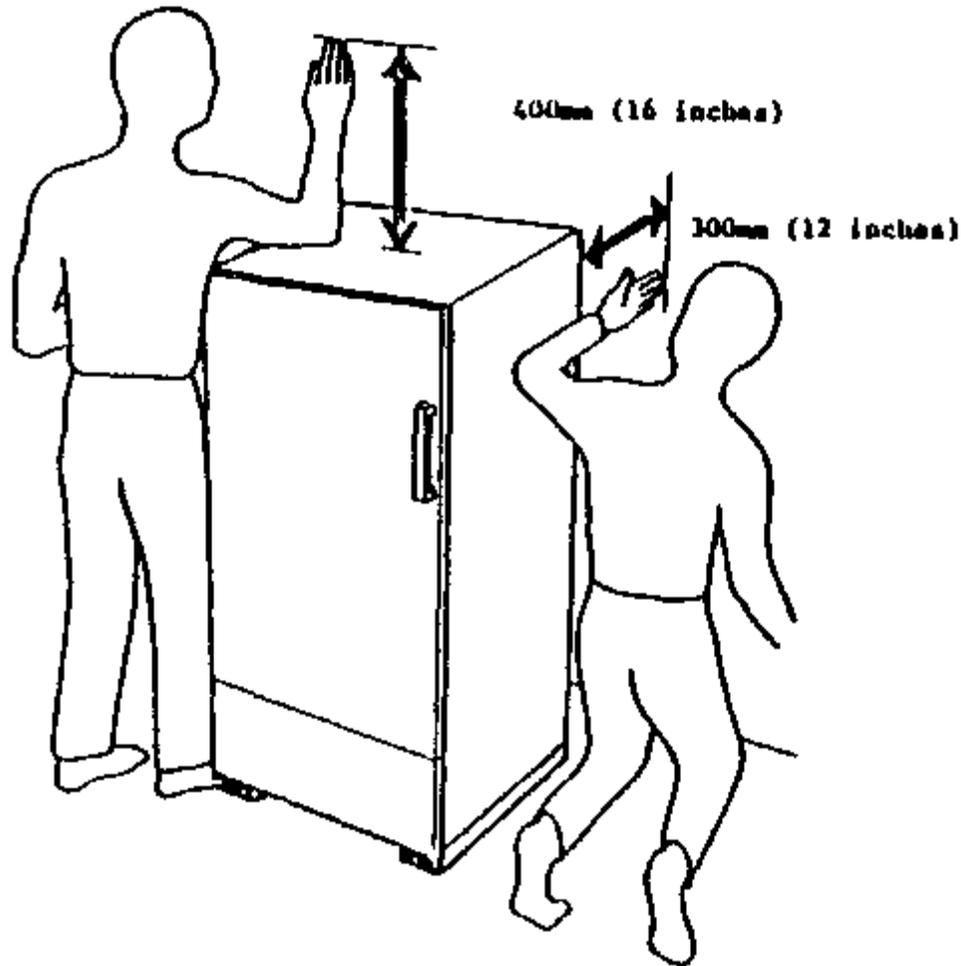
- Pack Ice packs closely in cold chain containers.
- Check for leaks; throw away packs with holes if they cannot be repaired.
- If there is room, keep spare ice packs on the lower shelves of front opening refrigerators. This will help the refrigerator remain cool in the event of a power failure.

Note:

You need not rely on commercially produced ice packs. Plastic bottles of water can be used just as effectively.

*Do not put more than 6 ice packs at one time in the freezer compartment. Wait until they are frozen before acting new lee packs, otherwise the temperature in the refrigerator will rise too fast.

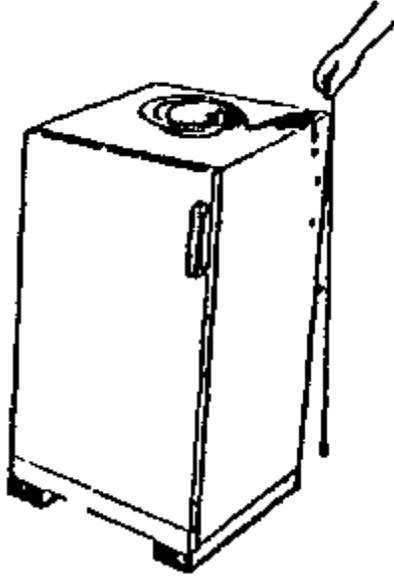
Installation



Installation

1. Place the refrigerator in the coolest part of the building.
2. The room must be well ventilated and a good air circulation around the refrigerator is necessary but avoid draughts from doors and windows.
3. Keep the refrigerator in the shade and away from heat of any kind.
4. Clearances to wall and roof must be at least as big as those shown in the picture below.
5. To keep the refrigerator dry, place it on wood blocks 1 to 2 inches (25 to 50 mm) thick.
6. The refrigerator must stand firm and level on these blocks. Use one of the checking methods shown on the next page. Make sure that the top of the cabinet is not bent.
7. Check that the door seals properly against the front of the refrigerator.
8. Make sure that the door opens and closes properly.

Refrigerator not level



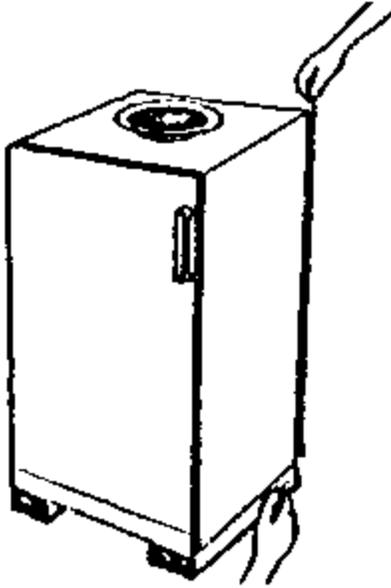
Refrigerator not level

- A. A full saucer of water placed on top will overflow.
- B. A plumb line will not be in line with the refrigerator.

Refrigerator level

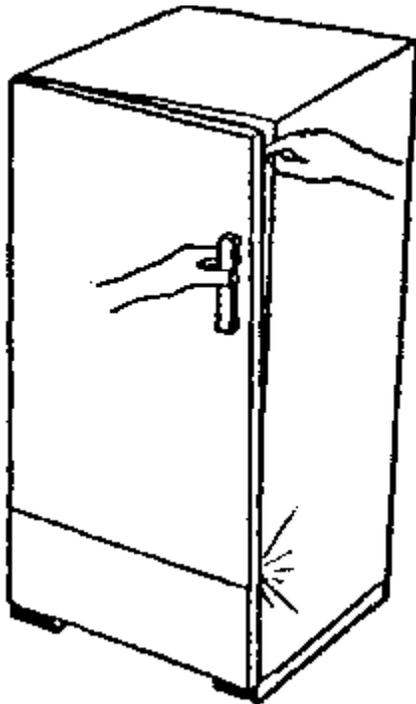
- A. No overflow of water.
- B. Plumb line in line with the refrigerator (Check the side and the front of the refrigerator with the plumb line).

Refrigerator level



Use an extra wood block to level the refrigerator or adjust the refrigerator or adjust the refrigerator legs.

Adjust refrigerator level



9. If the burner unit has not yet been fitted to the tank, unpack it and identify the parts shown in the drawings below.

Note:

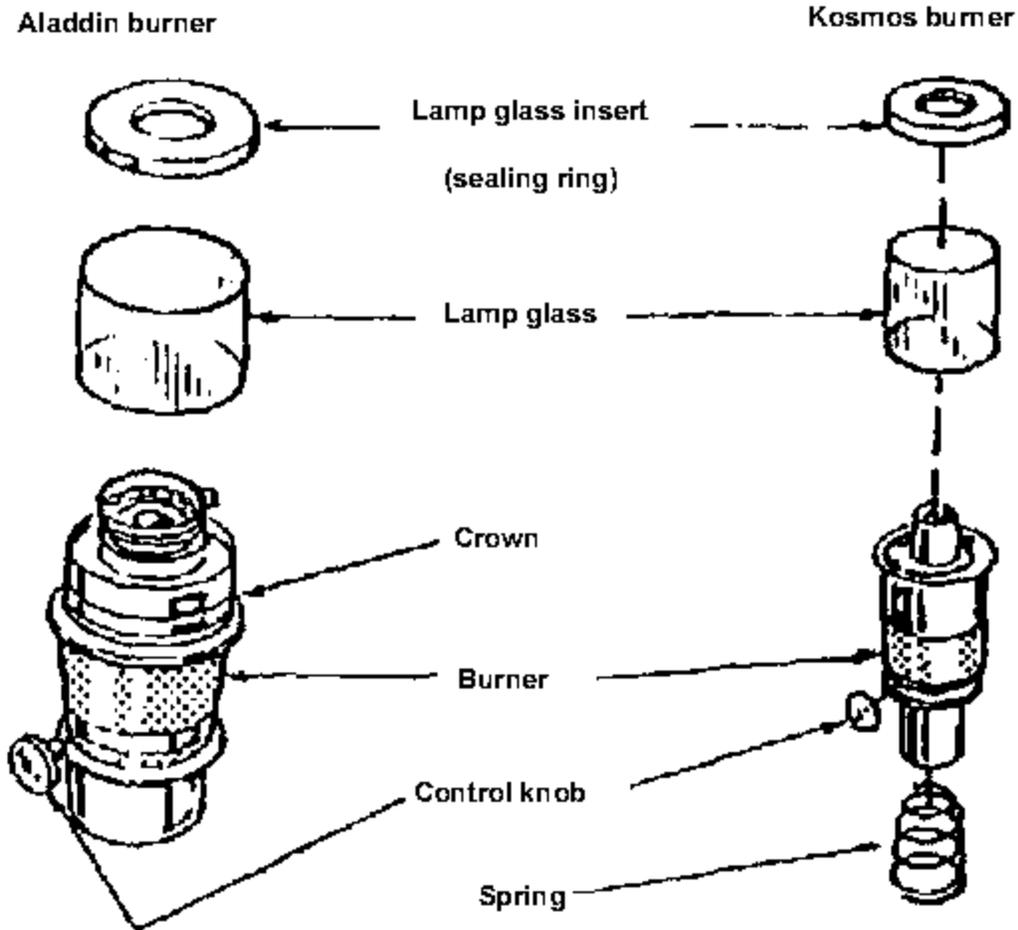
There are usually two types of kerosene burner:

- a large size, the "Aladdin" type burner;
- a small size, the "Kosmos" type burner.

Make sure you have the correct type for your refrigerator and all the necessary parts.

10. If any parts are missing, order them.

Aladdin and Kosmos burners



11. Remove the wick trimmer (if supplied) and keep it in a safe place.

12. Fit the wick to the burner.

Replacing the wick - Aladdin burner.

Note:

- Replace the wick when you cannot turn it up any more to trim it.
- Always clean the burner before you replace the wick.
- Make sure that you have the correct size of wick. The size is usually marked on the burner.
- Always keep at least two spare wicks in a safe place.
- Keep the spare wicks in a plastic bag. This keeps them clean and dry.

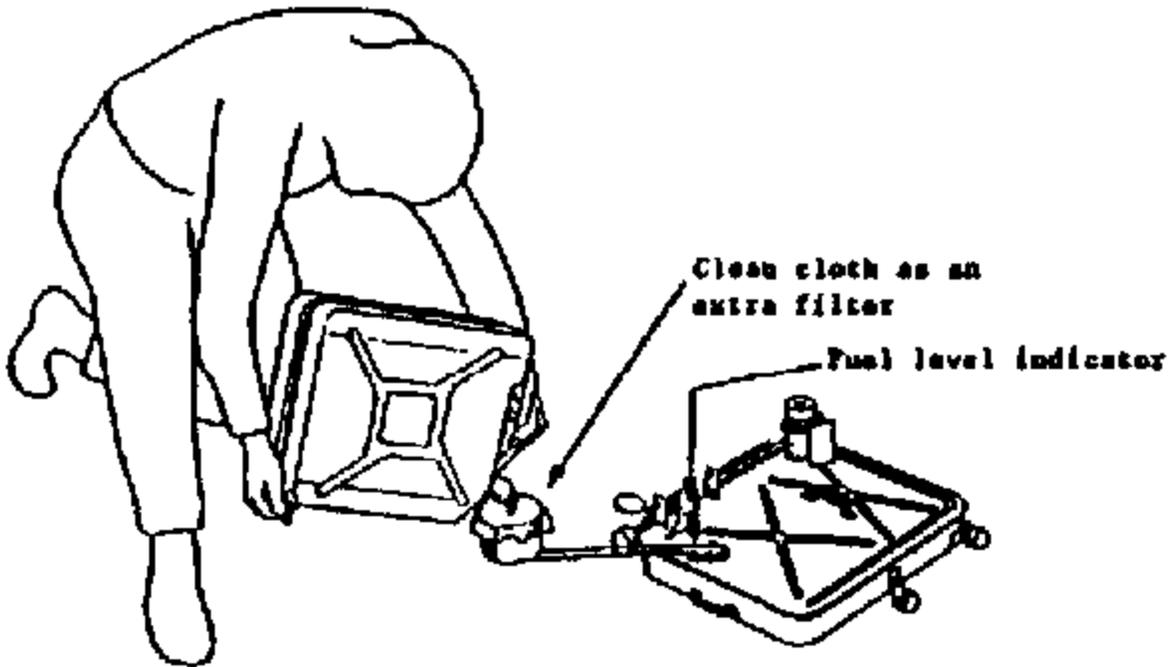
Fill the tank with kerosene

1. Carefully fill the tank with clean kerosene. Use the best quality kerosene available.

Note:

Always use a funnel with a filter. Some clean cloth on top of the funnel is a useful extra filter. If the funnel does not have a filter, you must use some clean cloth instead. The filter catches any dirt which is in the kerosene.

Fill the tank with kerosene



2. The fuel level indicator on the tank will show when the tank is full.

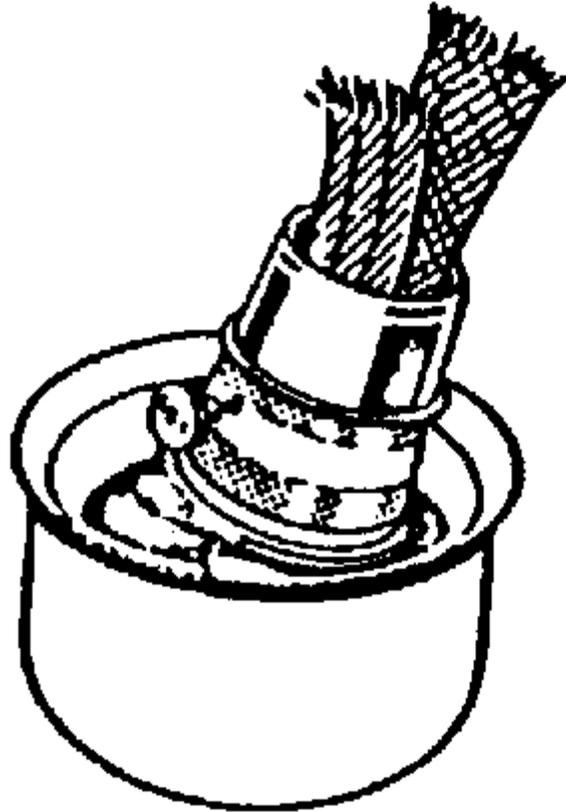
3. After filling, replace the tank lid and wipe the tank dry if any kerosene has been spilt.

4. Take the burner with wick fitted. If it an Aladdin (large) burner, take the crown off the top of the burner. The Kosmos (small) burner does not have a crown.

5. Turn the control knob on the burner so that the top of the wick rises 2 cm (1 inch).

6. Turn the burner upside-down and dip the top of the wick into clean kerosene for a few minute.

Control knob

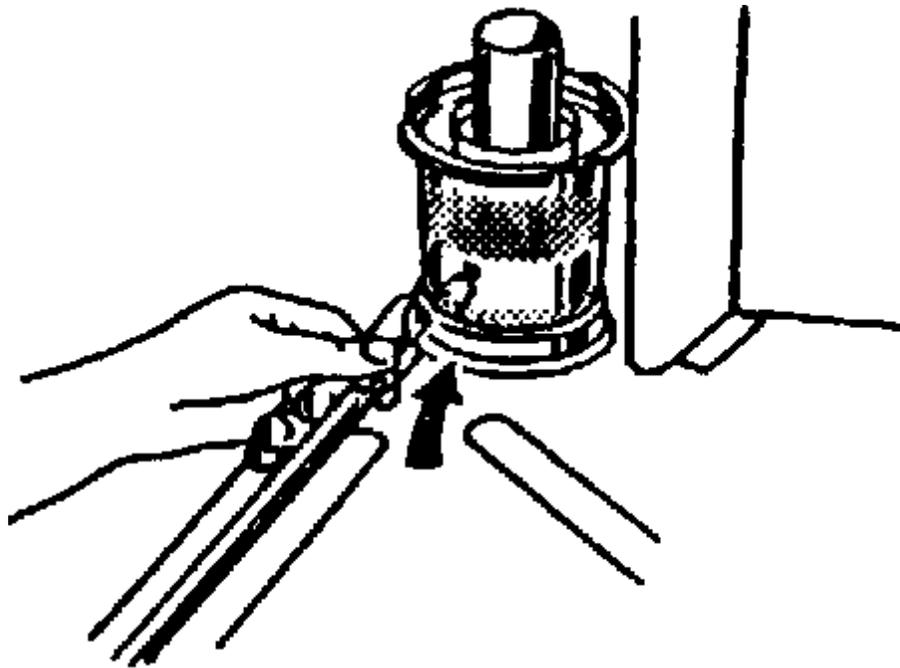


7. Fit the burner with wick onto the fuel tank.

Note:

If the tank comes out at the front of the refrigerator it will have a control shaft which fits onto the burner.

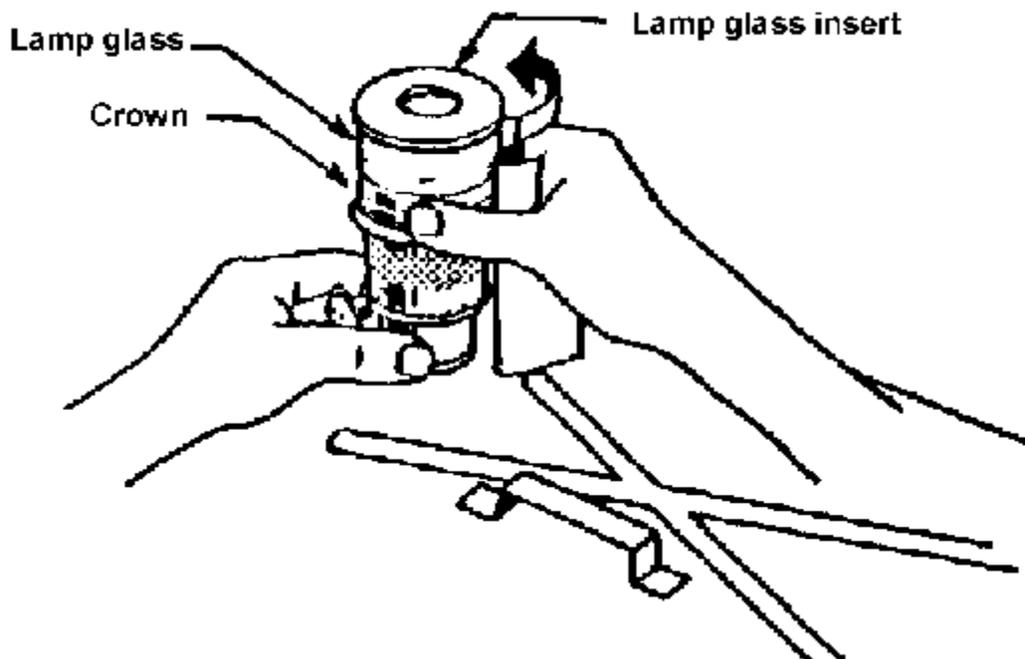
Fit the end of the control shaft to the burner.



8. Allow the wick to soak in the kerosene in the tank for at least one hour before lighting. If you do not, the wick will be destroyed when you light it.

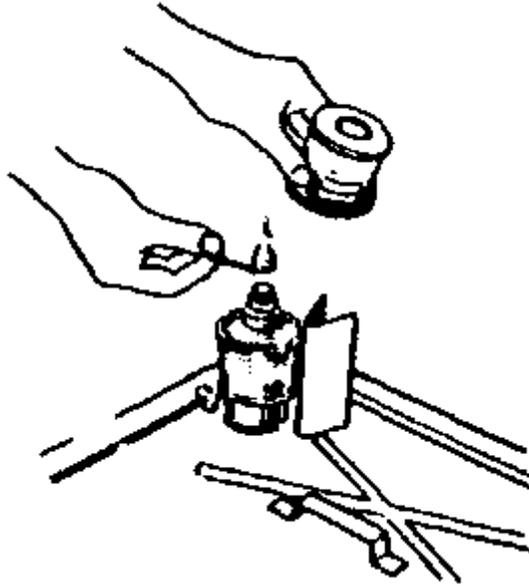
Lighting - Aladdin burner (blue flame)

1. Remove the crown together with the lamp glass and lamp glass insert (turn the crown anti-clockwise and lift).



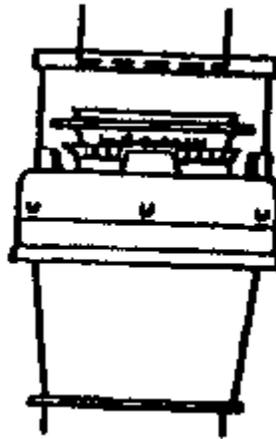
2. Adjust the wick to a height of 2 to 3 mm (1/8 inch).

3. Light the wick and allow the flame to travel around the wick.



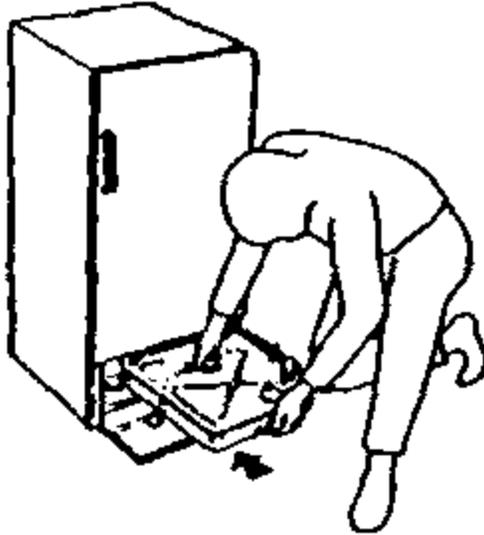
4. Carefully replace the crown, lamp glass and lamp glass insert.

5. Turn the flame down to the smallest possible size.



6. The tank goes into the front of the refrigerator on rails, and the end of the tank with the burner goes in first.

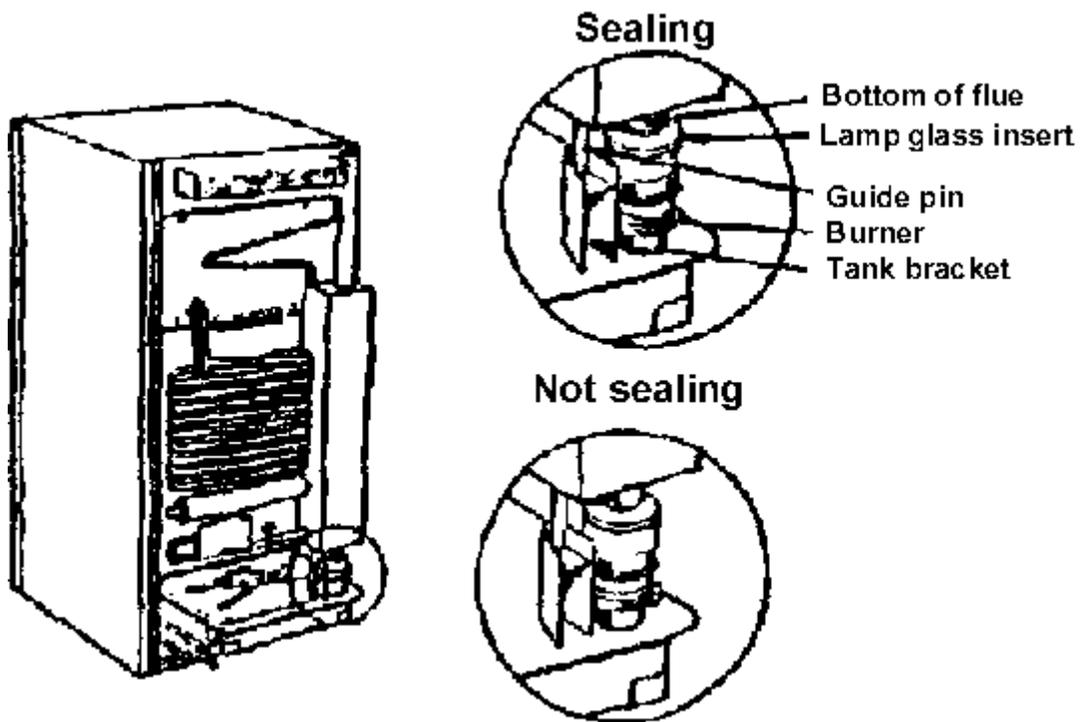
7. Carefully lift the tank and place the wheels at the burner and on the rails.



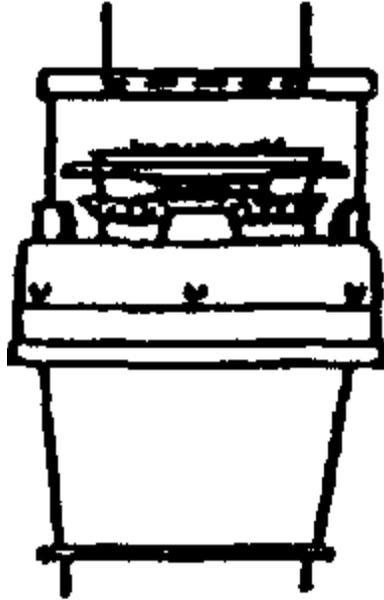
8. Carefully slide the tank in. Make sure that all the wheels go on the rails. Be careful not to break the lamp glass.

9. When the tank bracket stops against the guide pin, the tank is in the correct position. Carefully let the burner move up against the bottom of the flue. Be careful not to break the lamp glass.

10. Make sure that the lamp glass insert seals properly against the bottom of the flue. If it does not, adjust the tank position.



11. Turn the flame up to medium position and run the refrigerator for 3 to 4 hours.

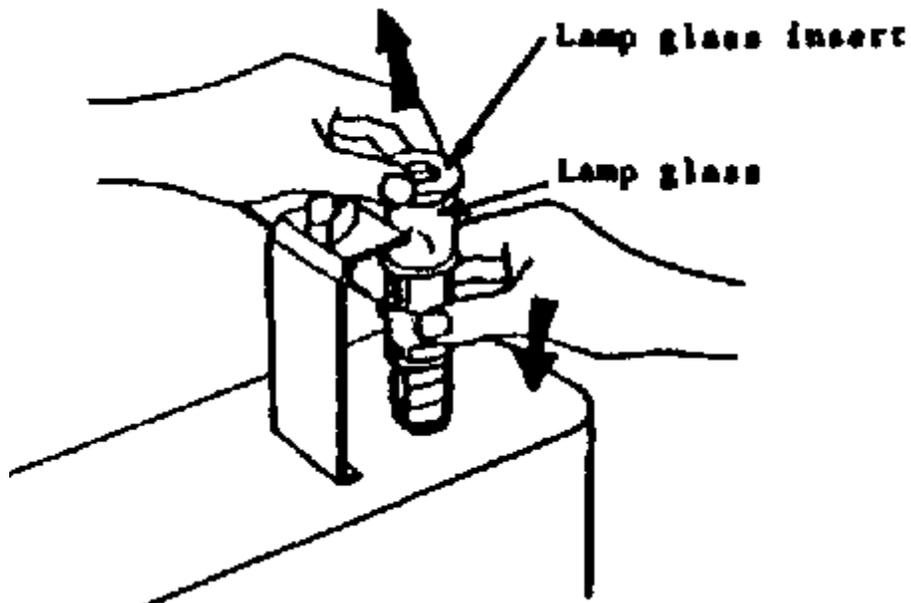


Note:

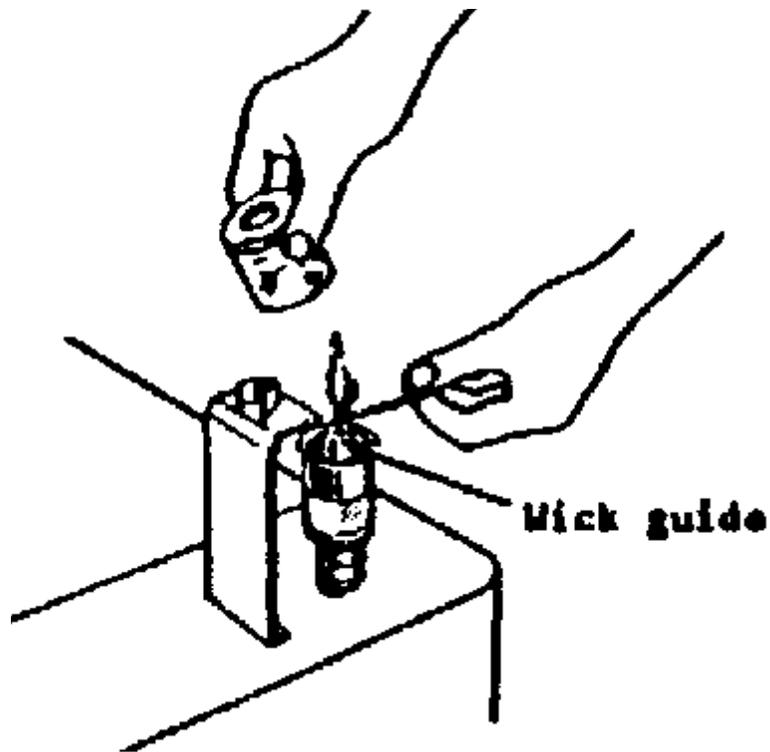
- Do not turn the flame to maximum until the flue has been heated for 3 to 4 hours.
- The flame should not burn yellow or with yellow storks.

Lighting - Kosmos burner (yellow flame)

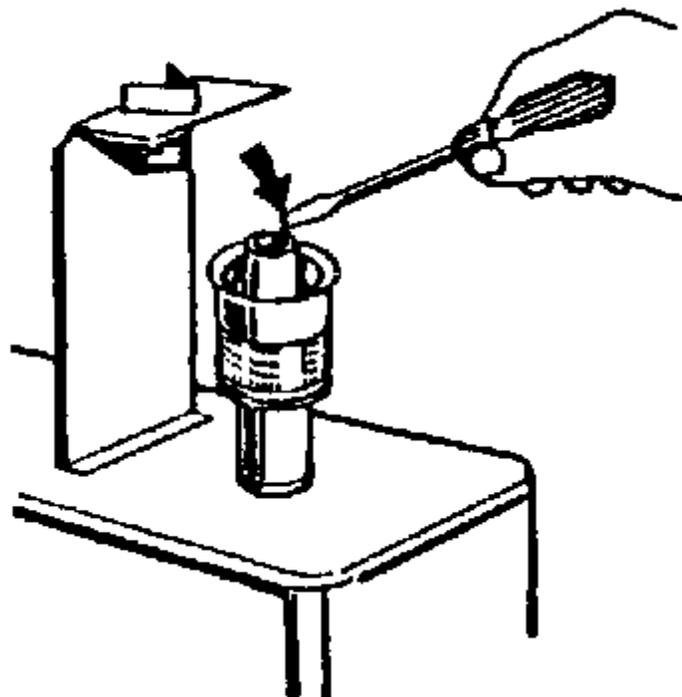
- 1. Remove the laps glass witch lamp glass insert (pull carefully) upward).**



2. Adjust the wick to a height of about 1 mm (1/32 inch) above the wick guide.
- 3. Light the wick and allow the flame to travel around the wick**



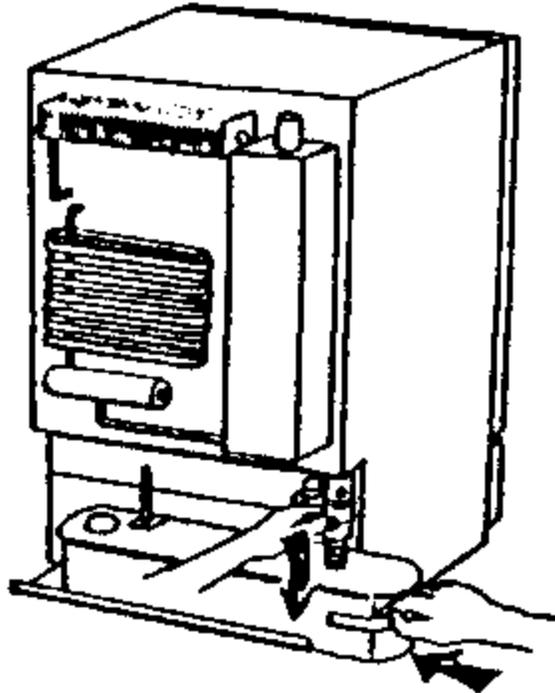
4. Turn the flame down to the smallest possible size. It should now be even. If it is not, press the wick down where the flame is high. Use a wire or screwdriver.



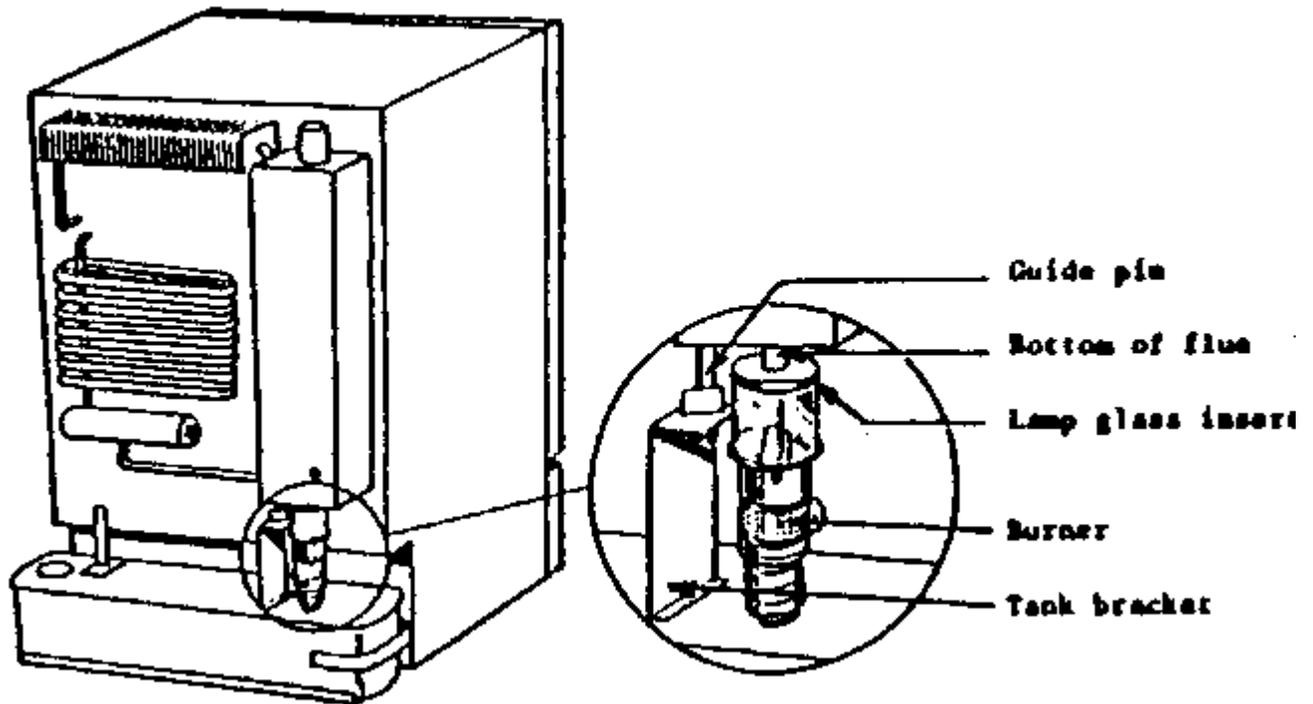
5. Carefully replace the lamp glass with lamp glass insert.

6. The tank goes into the back of the refrigerator from the side, and the end of the tank without the goes in first.

7. Carefully press the burner down and slide the tank into position. Keep the burner pressed down.



8. When the tank bracket stops against the guide pin, the tank is in the correct position. Carefully release the burner so that the lamp glass insert moves up against the bottom of the flue. Be careful not to break the lamp glass.



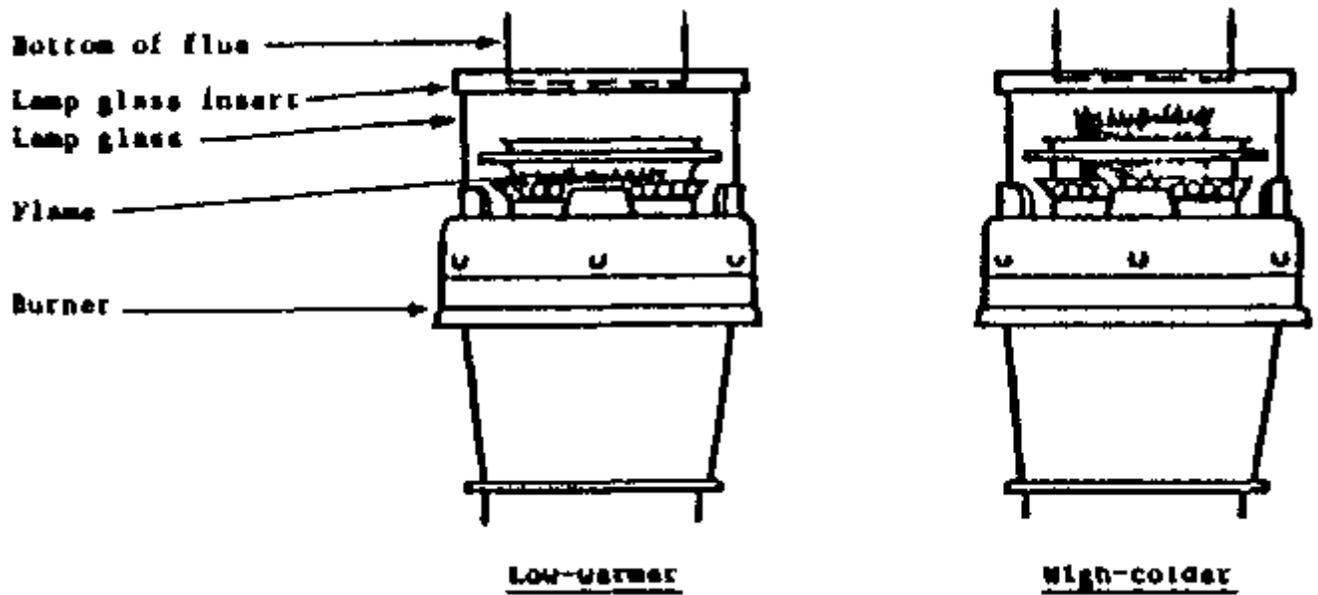
9. Make sure that the lamp glass insert seals properly against the bottom of the flue.

Adjusting the temperature

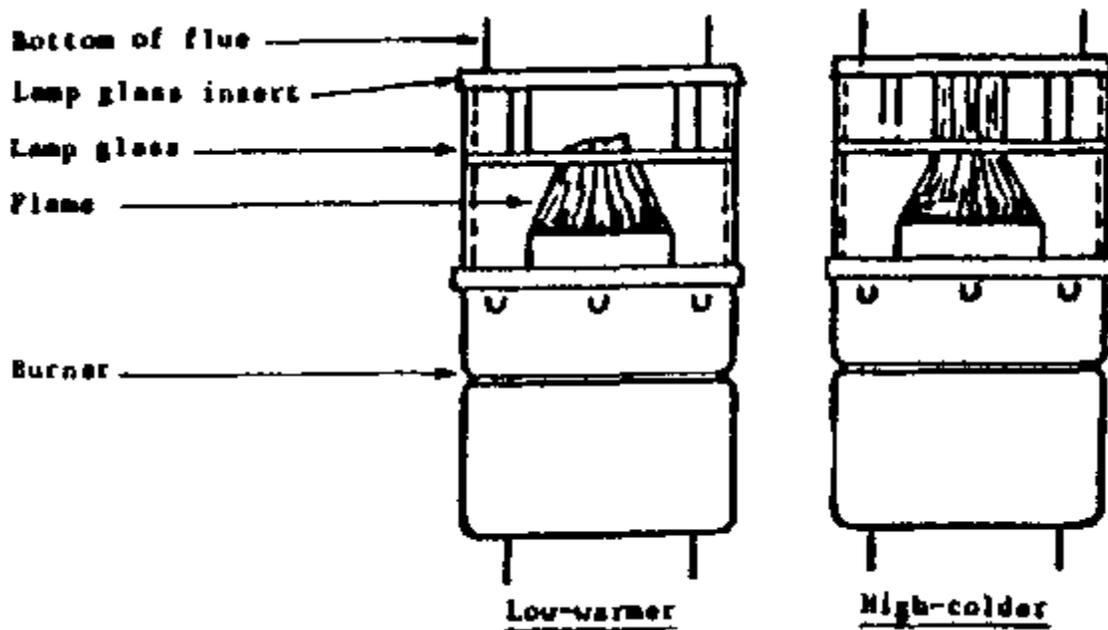
1. The burner should be slight all the time. The temperature inside the refrigerator should be between 0°C and $+8^{\circ}\text{C}$.
2. The size of flame controls the temperature inside the refrigerator. To change the size of flame, turn the control knob on the burner.

A big (high) flame makes the temperature colder.
A small (low) flame makes the temperature warmer.

Aladdin burner (blue flame)



Kosmos burner (yellow flame)



3. Check the temperature every morning and every evening. Adjust the size of flame if necessary.

4. To help keep the temperature cold enough inside the refrigerator, take the following actions:

- Carry out the daily, weekly and monthly tasks as shown in Job Aids 40, 41 and 42.

- Do not keep food or drink in the refrigerator.

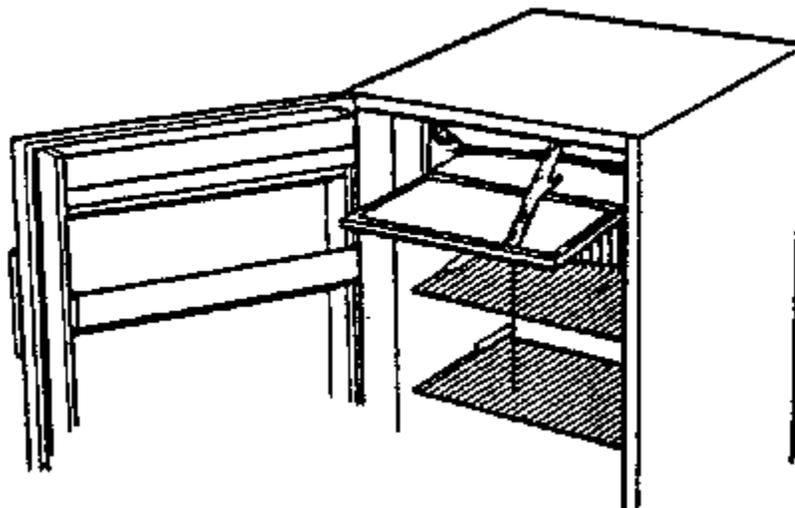
- Only open the door of the refrigerator when you have to take out or put in vaccines.

- Keep icepacks in the freezer compartment of the refrigerator. The icepacks should always be frozen hard.
- Keep bottle of water in the refrigerator cabinet.
- Arrange the boxes or trays of vaccine so that there is room for the cold air to move around inside the refrigerator. There should be at least 5 cm (2 inches) between each box or tray of vaccine.

Defrosting

It is normal for ice and frost to form on the evaporator. A thin layer of frost does not affect the cooling performance. A thick layer of frost (6 to 10 mm or 1/4 to 3/8 inch or more) must be removed by defrosting.

1. Move the vaccine into another refrigerator or store it in a cold box with icepacks.
2. Blow out the burner flame (or pull out the plug from the wall socket if on electric operation).
- 3. Open the door of the refrigerator and freezer compartment.**



4. As soon as it is possible to remove ice with your fingers do so. Do not use knives or other sharp instruments.
5. Empty the drip tray.
6. Wipe the freezer compartment dry.
7. Clean the refrigerator inside with soap and water. When it is clean dry it carefully.
8. Light the burner (or put the plug into the wall socket if on electric operation).
9. Wait until the inside temperature has been reduced to +4°C.
10. Place the vaccine inside and close the door.

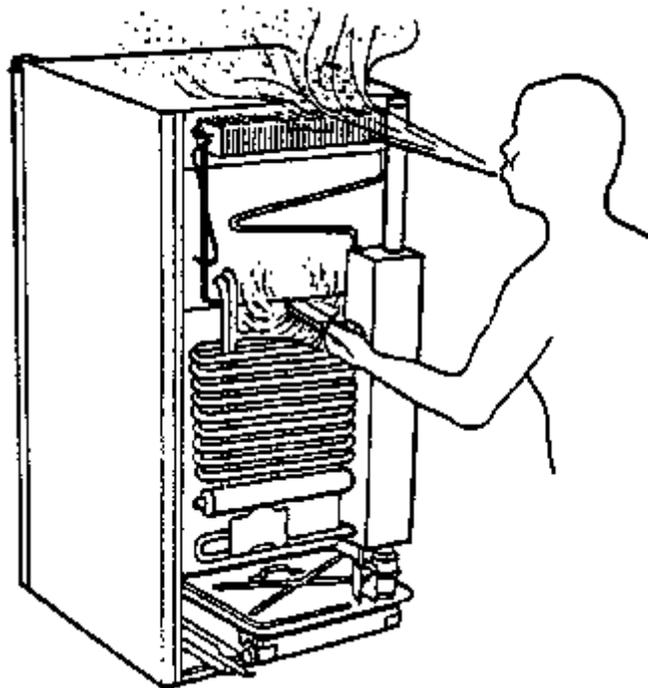
Note:

- Defrosting must be carried out as quickly as possible in order not to damage the vaccine.
- Use the time it will take to defrost to clean the refrigerator and carry out simple repairs.

Cleaning the refrigerator

1. Always clean the refrigerator inside when defrosting.
2. Use warm water and soap or a weak detergent.
3. Never use scouring powder, steel wool or abrasive cleaners.
4. Do not forget to clean the door gasket and put some talcum on it.
5. Before starting the refrigerator again, wipe all parts completely dry.
6. Put the vaccine back in as quickly as possible.
7. Clean the outside with a soft brush or a piece of cloth.
8. The condenser and cooling unit must be kept clean or the refrigerator will not work properly.

Cleaning the refrigerator

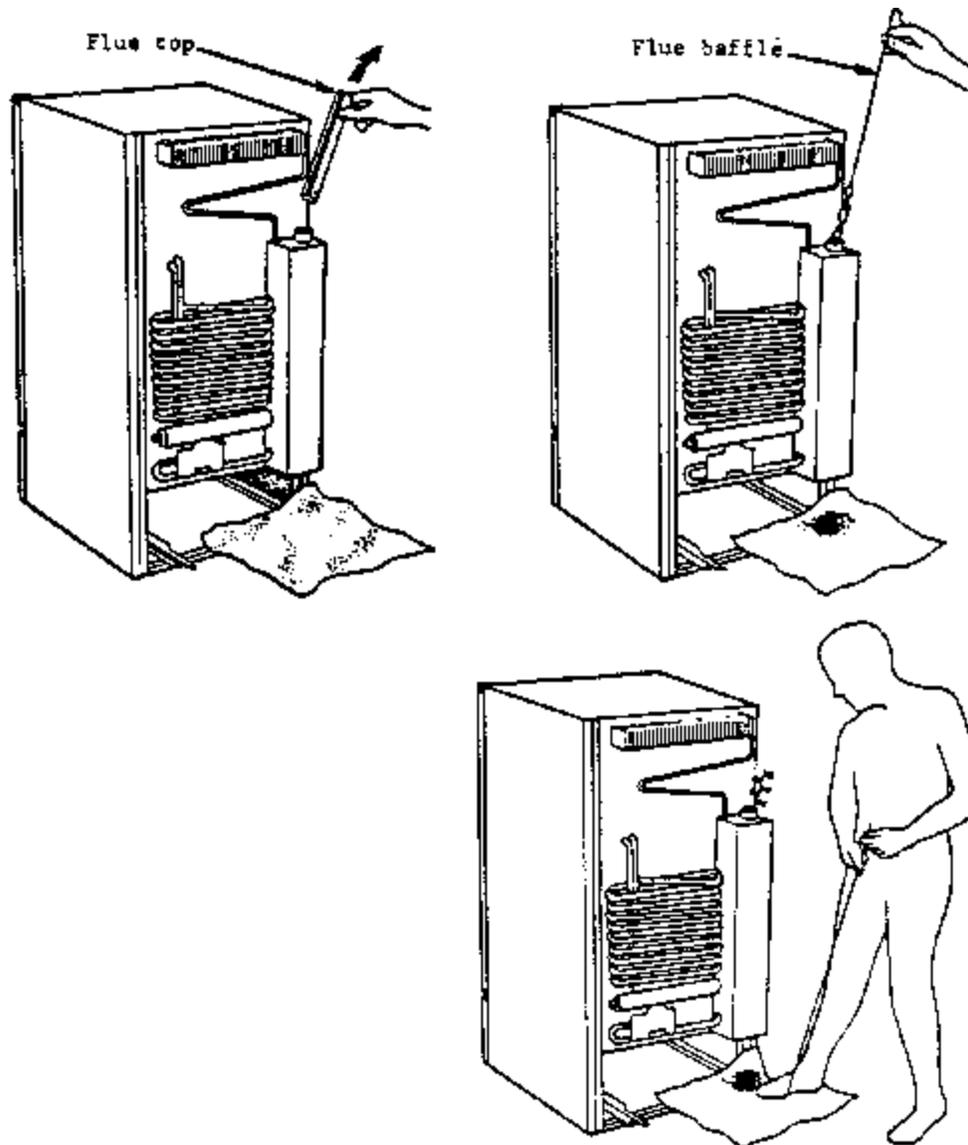


Cleaning the flue and baffle

1. Blow out the burner flame and remove the tank.
2. Place a piece of cloth under the flue.
3. Remove the flue top, if any (note how it should be refitted).

4. Pull out the flue baffle.
5. Clean the flue with the special brush supplied, until dirt stops falling on the cloth.
6. Carefully wrap the dirt in the cloth and remove it.
7. Replace the flue baffle and flue top.
8. Light the burner and replace the tank.

Cleaning the flue and baffle

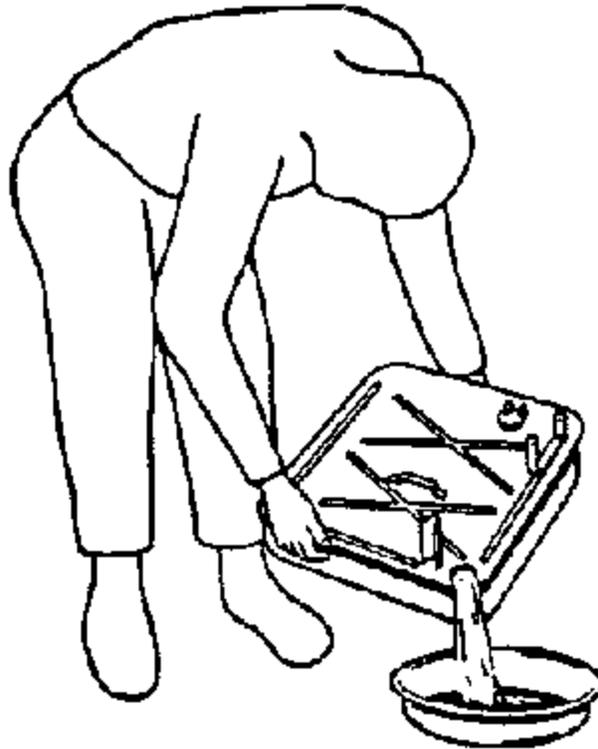


Cleaning the tank

1. Blow out the burner flame and remove the tank
2. Take the burner out of the tank.

Carefully empty the dirty kerosene from the tank. Do not use this kerosene in the tank again.

Cleaning the tank



3. Wash the tank out twice with a little clean kerosene. Do not use this kerosene in the tank again.

Note: The dirty kerosene can be used for cooking or lighting.

4. Clean the outside of the tank with a clean cloth and a little clean kerosene.

5. Remove any rust on the tank with sand paper or a metal brush. Paint this part to protect it.

6. Replace the burner.

7. Fill the tank with clean kerosene

Trimming the wick - Kosmos burner

If the wick is not clean and level, it will not burn properly.

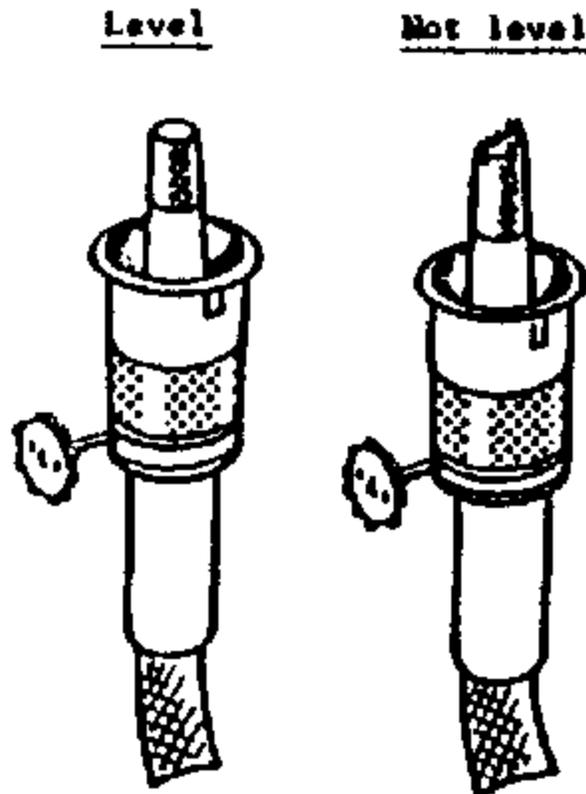
1. Blow out the flame. Wait a few minutes for the burner to cool.

2. Remove the tank.

3. Remove the amp glass and lamp glass insert.

4. Turn the wick down until only the burnt part shows. Cut off the burnt part of the wick with scissors or a razor.

5. Turn the wick up until 2 mm (1/10 inch) shows. Light the wick and wait until it stops burning.
6. Blow the ashes off. Do not let them fall into the burner.
7. **Check that the wick is now level and clean.**



8. Replace the lamp glass and lamp glass insert.

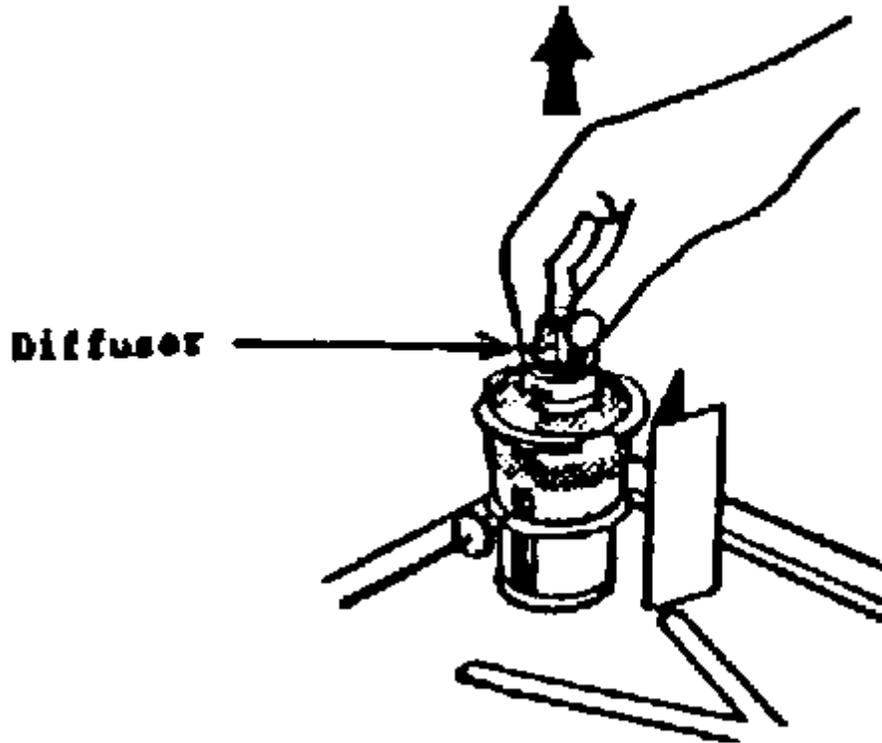
Note: If the wick cannot be turned up any more to trim it, replace the wick.

Trimming the wick - Aladdin burner

If the wick is not clean and level, it will not burn properly.

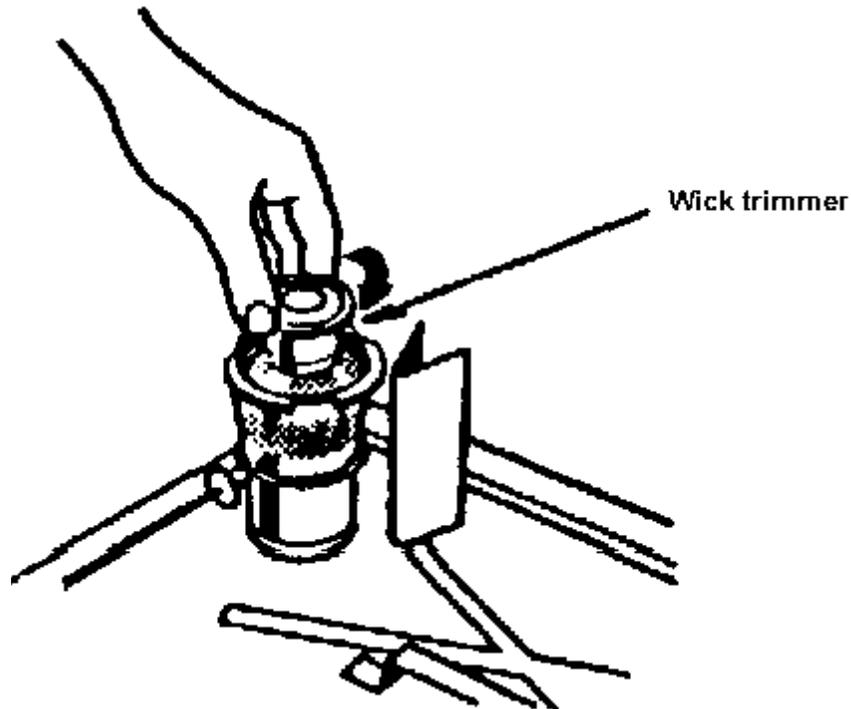
1. Blow out the flame. Wait a few minutes for the burner to cool.
2. Remove the tank.
3. Remove the lamp glass and lamp glass insert.
4. Take out the diffuser.

Diffuser



5. Turn the wick down until only the burnt part shows.
6. Cut off the burnt part of the wick with scissors or razor.
7. Turn the wick up 2 cm (1 inch).
8. Place the wick trimmer gently on top of the wick, and turn it clockwise through half a circle.
9. Blow the wick and burner clean.

Wick trimmer



Special Maintenance for Gas Refrigerators

Always keep a spare bottle of gee available.

Always keep a spare gee supply pipe available

Every day

Keep a thermometer in each refrigerator. Look at the thermometer at the same time every day; it should show a temperature in the 4°C to +8°C range.

Look at the burner flame; it should be a steady blue. If it is small, yellow, or shaking, clean the fuel jet:

Turn off the gas

Remove the burner from the refrigerator

Gently wipe the top face of the burner with a damp cloth

Check the liquid level in the bottle. If it is low, replace the bottle.

Every week

Look for ice formation on the evaporator.

Level the refrigerator.

Look at the condenser and cooling unit; if they are dusty, remove the dust with a soft brush.

Check gas connections for leaks.*

Clean the burner and jet.

Clean the flue and baffle.

***Do not smoke while checking for leaks. KEEP ALL FLAME AWAY.**

Open the valve on the gas bottle, if it is closed.

Watch each connection, and the gas *pipe*, for bubbles

Bubbles that are growing indicate leaking gas. If you find a leak turn off the gee supply IMMEDIATELY.

Tighten any connections that were leaking.

Put soapy water on the tightened connection, and look for bubbles.
If the connection still leaks, replace it with a new one.

NOTE: If there is a leak in the gas pipe itself, replace the pipe. (Always have a spare gas pipe.)

If there is a leaking connection, or pipe, that you cannot replace, turn the gas off at the bottle and keep it turned off until the leak has been repaired. Either get a qualified technician to repair it, or report the leak to the aid-level echelon.

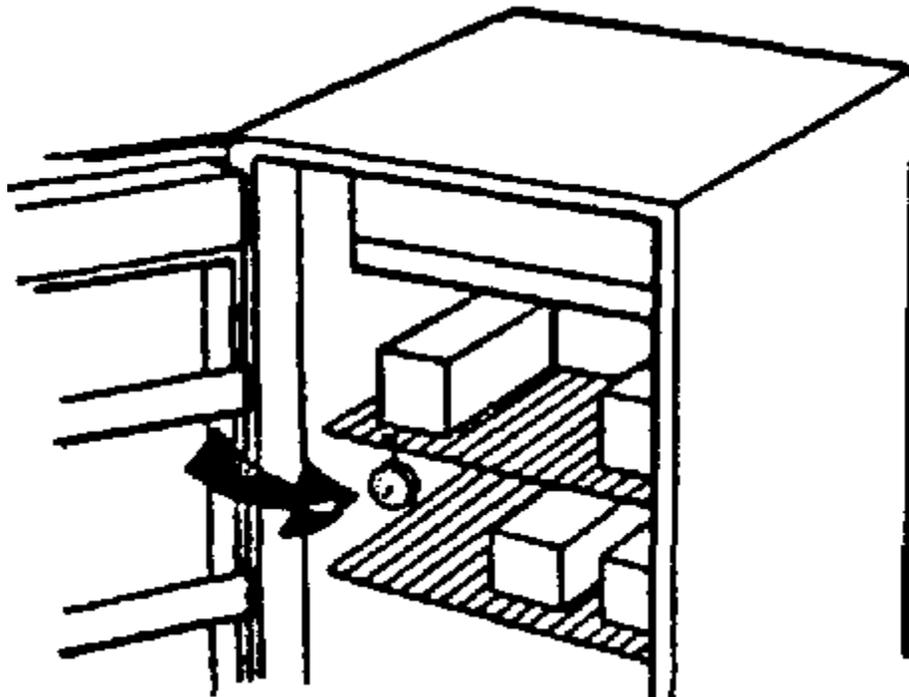
If the connection does not leak check all other connections, in turn, the same way.

Every day actions

1. Check the temperature inside the refrigerator. It must be between 4°C and +8°C.

Note: Always keep a thermometer inside the refrigerator.

Check the temperature inside the refrigerator



If the temperature cannot be adjusted to between 4°C and +8 C, the refrigerator is not working properly.

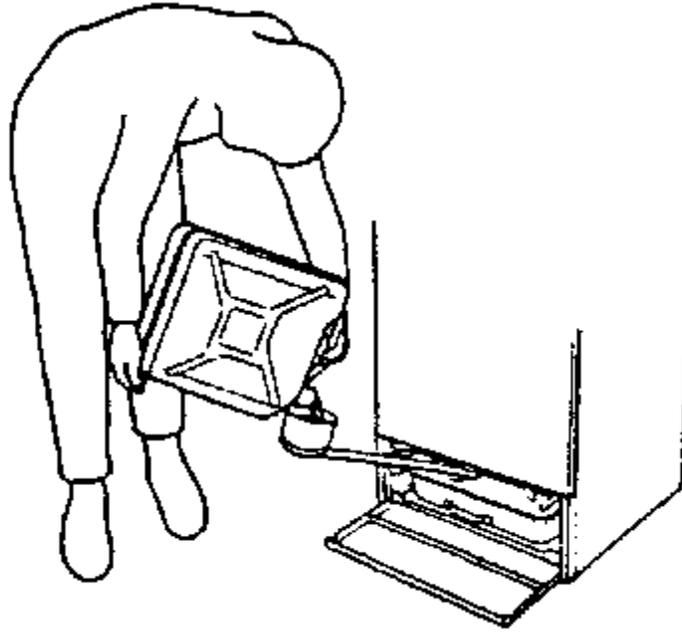
2. Check that the burner flame is the correct height and color.

If the flame smokes, turn it down a little.

If it still smokes, clean the wick, burner, flue and baffle.

Note: Always clean the flue if the flame has been smoking.

3. Fill the fuel tank with clean kerosene.



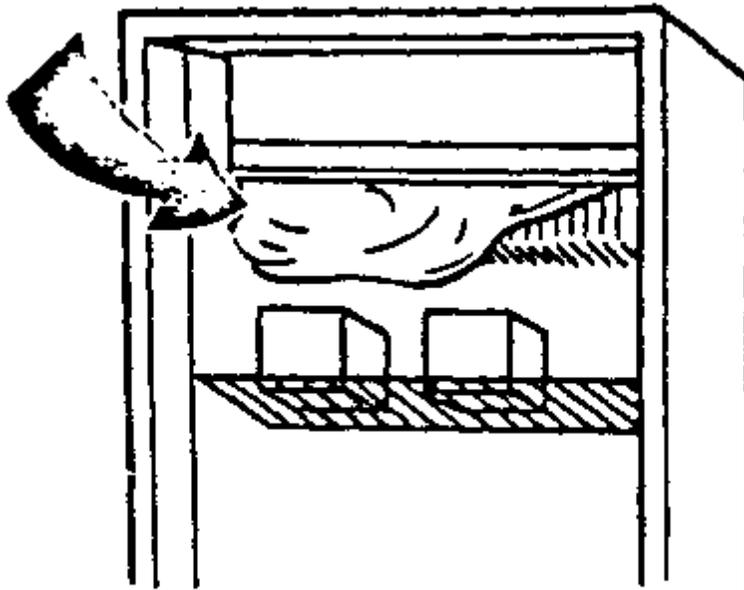
Note: Always use a funnel with a filter, or with clean cloth as a filter.

Every week actions

1. Check the ice formation on the evaporator. If the ice is thicker than 6 to 10 mm (1/4 to 3/8 inch) defrost the evaporator.

Note: If defrosting is necessary every week the door is probably not sealing properly.

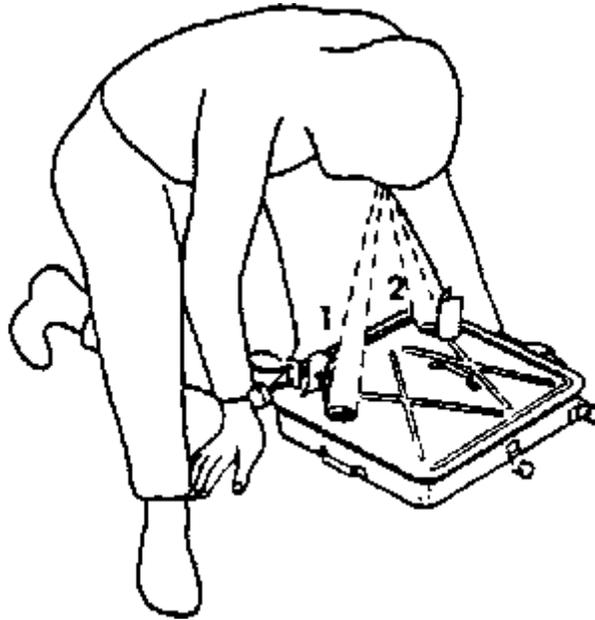
Check the ice formation on the evaporator



2. Check that the kerosene in the tank is clean. Clean the tank if necessary.

Note: If the tank has been filled correctly each day it should not need cleaning each week.

Check that the kerosene in the tank is clean

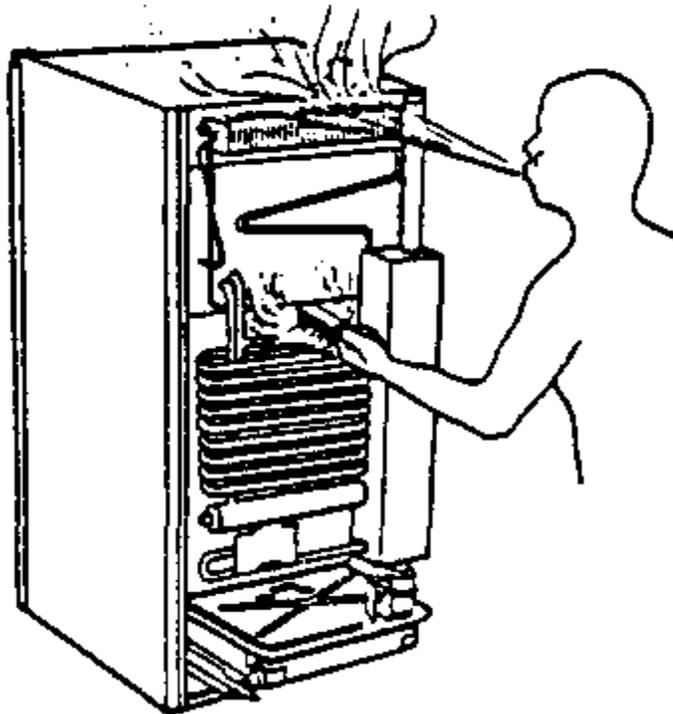


3. Clean the flue and baffle.
4. Clean the burner.
5. Trim the wick.
6. Check that the refrigerator is level.

Every month actions

1. Check that the condenser and cooling unit are clean. Remove any dirt or dust with a soft brush.

Check that the condenser and cooling unit are clean

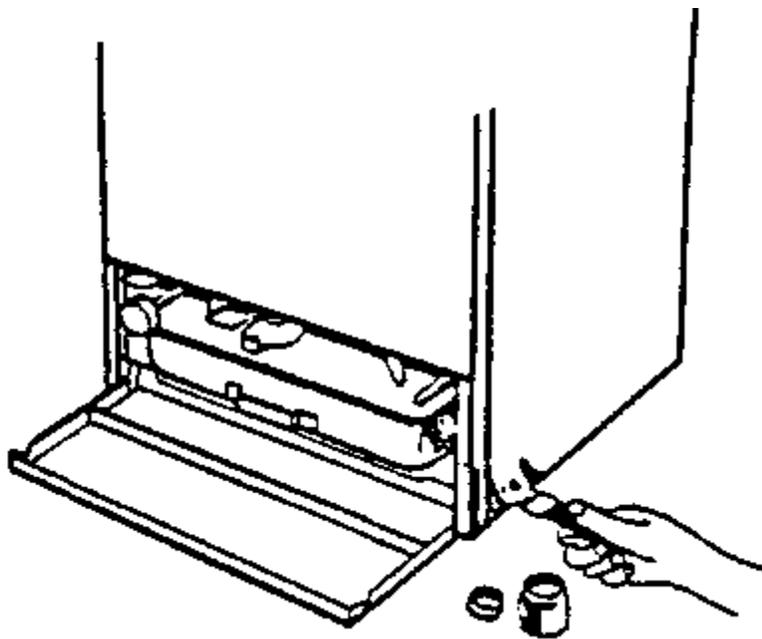


2. Clean the tank.

3. Check the outside of the refrigerator for damaged paint work.

- (a) Clean the damaged surface
- (b) Remove all rust
- (c) Repaint the damaged area

Check the outside of the refrigerator for damaged paint work.



Note: When necessary:

- Clean the refrigerator in- and outside with a damp cloth. Use mild detergent only.
- Clean the door gasket and powder it with some talcum.

(From: CDC/CCCD Draft Training Materials; Job Aids)

Session 36, Trainer Attachment 36B: Task analysis for organizing immunization activities

Information for explaining to mothers what you are going to do

Following are several task analysis forms. Detailed examples of tasks that should be considered when conducting a vaccination session and that the participants should become aware of are also attached for your reference and for distribution to the appropriate participants in Step 9.

Exercises and Case Studies are also included in this handout and will serve as a useful guide for discussion in Step 9 and for planning what to observe during their visit to a health clinic (Session 37).

Sample task analysis work sheet (a)

Category of Worker: Recorder			
The Task: Complete Records and Reports			
Subtasks	Knowledge	Skills	Attitudes
1. Record Immunization given at clinic on child's health card and clinic record	Determine that child actually received vaccine		Accuracy
2. Tally vaccines given at clinic		Arithmetic ability	Accuracy
3. Recording number of vials of vaccine used or destroyed		Monitoring vaccine usage Report Writing	Accuracy Thoroughness

Sample task analysis work sheet (b)

Category of Workers: Peripheral Health Center Worker
The Tasks: Screening Child and Pregnant Woman

Subtasks	Knowledge	Skills	Attitudes
1. Check vaccination records	Know the immunization schedule		
2. Determine if child has had all the immunization needed		Recognition of complete series	
3. Check to be sure that there are appropriate intervals between doses given in a series		Recognition of minimum intervals between doses	Accuracy
4. Determine Contra-indications	Knowledge of Contra-indication		
5. Insert + or 0 for vaccine that child needs to be given at clinic	Reporting		

Sample task analysis work sheet (c)

Category of Worker: Health Educator			
The Task: Provide Health Information			
Subtasks	Knowledge	Skills	Attitudes
1. Inform mother of what immunizations are needed	Know the immunization schedule	Ability to assess immunization card correctly	Uses local name for disease
2. Inform mother what diseases can be prevented by immunization			
3. Inform mother for what vaccines child will need to return			Encourages mother to take good care of vaccination card and to return for follow-up
4. Acknowledge possible side effects			Listen/ask questions and encourage responses

5. Acknowledge traditional beliefs	Know good and harmful health practices		Show respect Use local words
6. Determine mothers' understanding of health information			Ask questions Listen

5. HOW TO CONDUCT AN OUTREACH IMMUNIZATION SESSION

Arranging a site with help from the community

Stations and waiting areas

The seven tasks at an immunization session

Registering

Weighing

Screening

Treatment

Immunization

Explanation

Health Education

Records - the Growth Chart and the Tally Sheet

Leaving a site and returning to the health centre

5.1 Starting a new outreach session

First, you must visit the community, talk to their leaders, and explain about your programme.

Ask the people if they would like you to come, and ask which is the best day. You may need to make several visits before you get a clear answer.

Find a CONTRACT person

Ask the people to find a contact person for you. The contact person knows when you will come; they tell the mothers, and find people to help you.

This is discussed in more detail in Module 6, "Health Education".

Arranging your first visit

Arrange in advance with the community which day to have your first immunization session.

Visit again a few days before the session, to make detailed plans.

Plan the site where the session will be; the furniture that you can borrow; the stove to borrow; and where to find water.

Explain to your contact person exactly what you want them to do.

Later visits

Try to find a good day for that community.

Try always to go to the same place, at the same time, on the same day of the month.

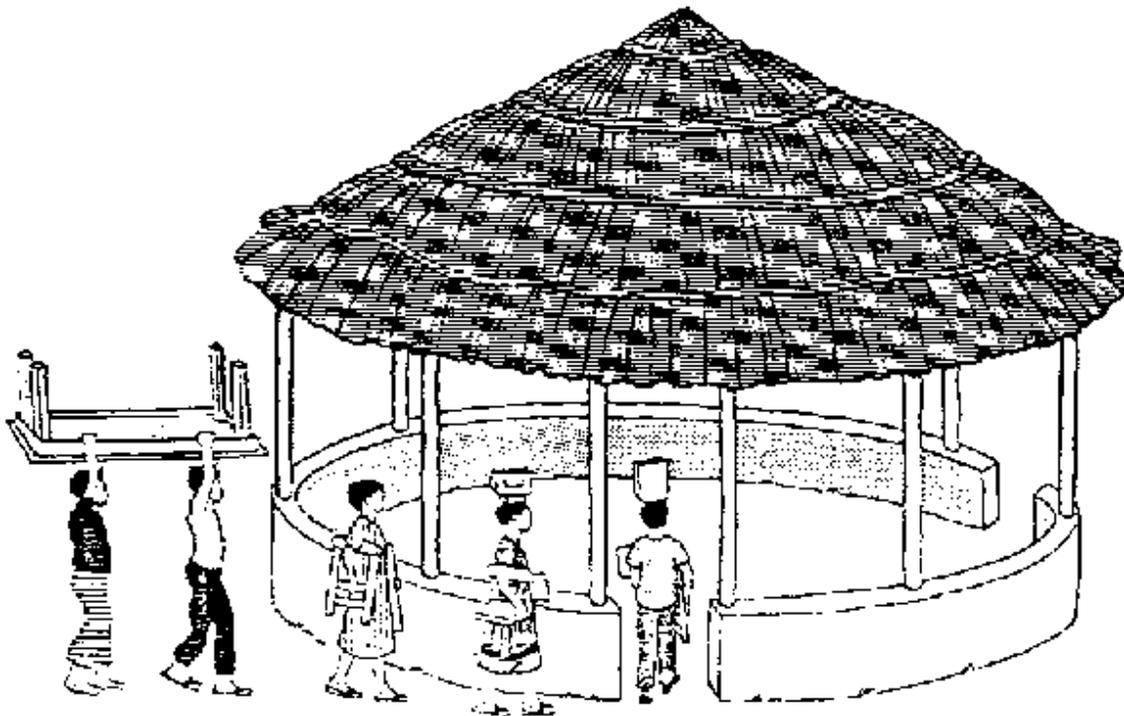
This helps the people to remember to come.

5.2 Arriving at a village for an immunization session

What do you do first ?

- * Put the vaccine carrier in the shade in a house, or under a tree.
- * Find your contact person to tell them that you have come. Greet them, and introduce your helpers.
- * One member of the immunization team starts health education, (Module 6). Greet the waiting mothers, take them somewhere outside the site itself, and arrange for them to sit down comfortably. You might choose the waiting area for the session.
- * The other team members prepare the immunization site with help of people from the community. In some programmes, the contact person prepares the site and the people before the team arrives.

Fig. 5-1: Preparing the immunization site with help from the community



What kind of site do you need ?

You need a site that is **SHADED** and **ENCLOSED**.

The site may be in a building, such as a school or house; or out in the open, in the shade near a building or under some trees.

If possible the site should be enclosed, with an ENTRANCE and an EXIT.

If it is in the open:

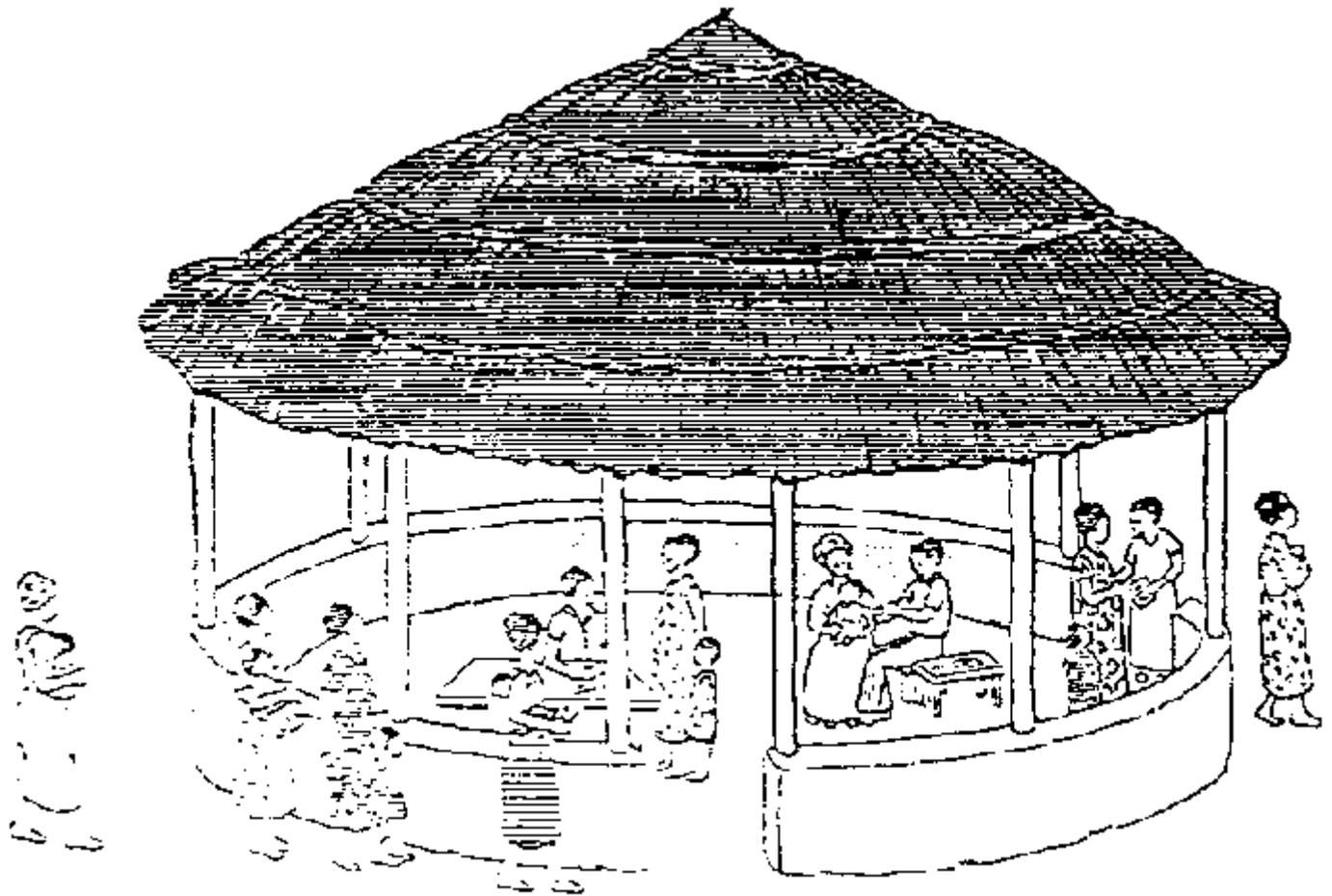
You can arrange chairs and tables, branches, or a rope to make an "entrance" and "exit". Then it is easier to arrange the WAITING and the FLOW (or movement) of mothers and children.

If your site is in a building:

Make sure that you have enough space. You need either one large room, or 2-3 smaller rooms; or a room and a hallway.

If you have to sterilize your instruments at the site, find a safe place to do that, away from the children.

Fig. 5-2: An immunization site that is shaded and enclosed



5.3 Stations at an immunization session

What is a STATION?

A station is a place where there is:

- A health worker, helper or both
- The equipment that they need for one or more TASKS

- Something to put the equipment onto (a table if possible)
- Something for the health worker to sit on (chair or stool)
- Something for the mothers to sit on (bench or stool)

The equipment, you must bring with you. The chairs, stools, benches and tables you must borrow from the local community.

What are the TASKS that you have to do at a station?

Some or all of these:

1. Registering
2. Weighing
3. Screening
4. Treating
5. Immunizing
6. Explaining - personal health education and advice
7. Health education - group teaching

Some programmes include antenatal care and family planning, but we do not discuss them here.

How many stations do you need ?

- * Think of the numbers of mothers and children who attend the session.
- * Think of the numbers of workers to do these tasks. You may have one or more trained health workers, and one or more helpers from the community who may or may not be literate.
- * Think how many tables and chairs you can borrow at the site. There may be plenty of them at a school, or very few in a village.

You may be able to borrow small tables, one for each session; or you may have to use one long table and put several stations onto it. Arrange them carefully.

WHEN THERE ARE MANY HEALTH WORKERS and helpers, and especially if there are many children, you can have more stations. At each station you do fewer tasks for the children.

WHEN THERE ARE FEW HEALTH WORKERS and helpers, and hopefully not so many children, you have fewer stations. At each station you do more different tasks for the children.

Fig. 5-3: An immunization session with three stations, two health workers, a community health worker, and a village volunteer.



5.4 Different ways to combine TASKS at the stations

A small session - one health worker, one helper:

Station 1: a literate helper: registering and weighing.

Station 2: a health worker: screening, treating, immunizing.

A medium session - two health workers, one helper:

Station 1: a literate helper: registering, weighing (or weighing only).

Station 2: first health worker: screening.

Station 3: second health worker: treating, immunizing,

A large session - two health workers, three helpers:

Station 1: two helpers, one literate: registering, weighing.

Station 2: first health worker: screening.

Station 3: experienced helper: treating.

Station 4: second health worker: immunizing.

A very large session - 3-4 health workers, 3-4 helpers:

One station for each task.

You can divide immunizing between two stations;

one for DPT, polio and measles,

one for BCG and TT.

Where do you do the health education tasks?

EXPLAINING - ant personal advice, is important at every station, especially at the exit.

In a very large session, you may have a special "Exit station" where someone talks to mothers.

Give personal health education whenever you can. Always discuss with a mother what you are doing to her child.

GROUP HEALTH EDUCATION can be done in the waiting area before the immunization session begins; or in the middle of the session - for example, while You sterilize some instruments.

GIVE PERSONAL HEALTH EDUCATION AT EVERY STATION

CASE STUDY - The clerks and the tables

A new supervisor was visiting the busiest immunization team in his area.

He found them working in a dark hot room.

Near the door, where there was some light, were two large tables. A clerk sat at each table. One registered the mothers and children. The other clerk spoke to each mother as she left, and explained what to do about fever, and when she should come again.

At the dark end of the room, two nurses were standing. They were screening, treating, and immunizing the children. The mothers stood in a silent queue, waiting their turn. The equipment for sterilizing and immunizing was all together on a narrow shelf on the wall. After she gave an injection, the nurse held the growth chart in her hand and wrote the date.

The supervisor asked the clerks and the nurses to a meeting to discuss the organization of their immunization sessions.

Points to discuss

- a) What was wrong with the arrangement of the room and the tasks ?
- b) What do you think that the supervisor tried to suggest at the meeting ?

5.5 How to arrange a site for your immunization session

- Plan how many stations to have (5.3)
- Arrange the flow of mothers and children
- Arrange the waiting areas.
- Arrange each station.

Arranging the flow of mothers and children

You must arrange flow, (or movement), whether your site is inside or outside a building.

- * Make a clear ENTRANCE and EXIT to the immunization site.
- If you are outside, mark the entrance and exit, and block other ways into the area.
- If you are inside, close and lock any extra doors.
- * Arrange the stations along a PATH between the entrance and exit.

* Guide the mothers into a SINGLE LINE to enter the immunization area.

Do Not allow too many mothers to go inside the area at the same time.

Do not allow more than two mothers to be at a station at the same time. The mother of the child who is receiving attention must be able to sit down.

* When a mother has finished at all the stations, guide her to the exit.

Fig. 5-4: Plan of an immunization site in a building

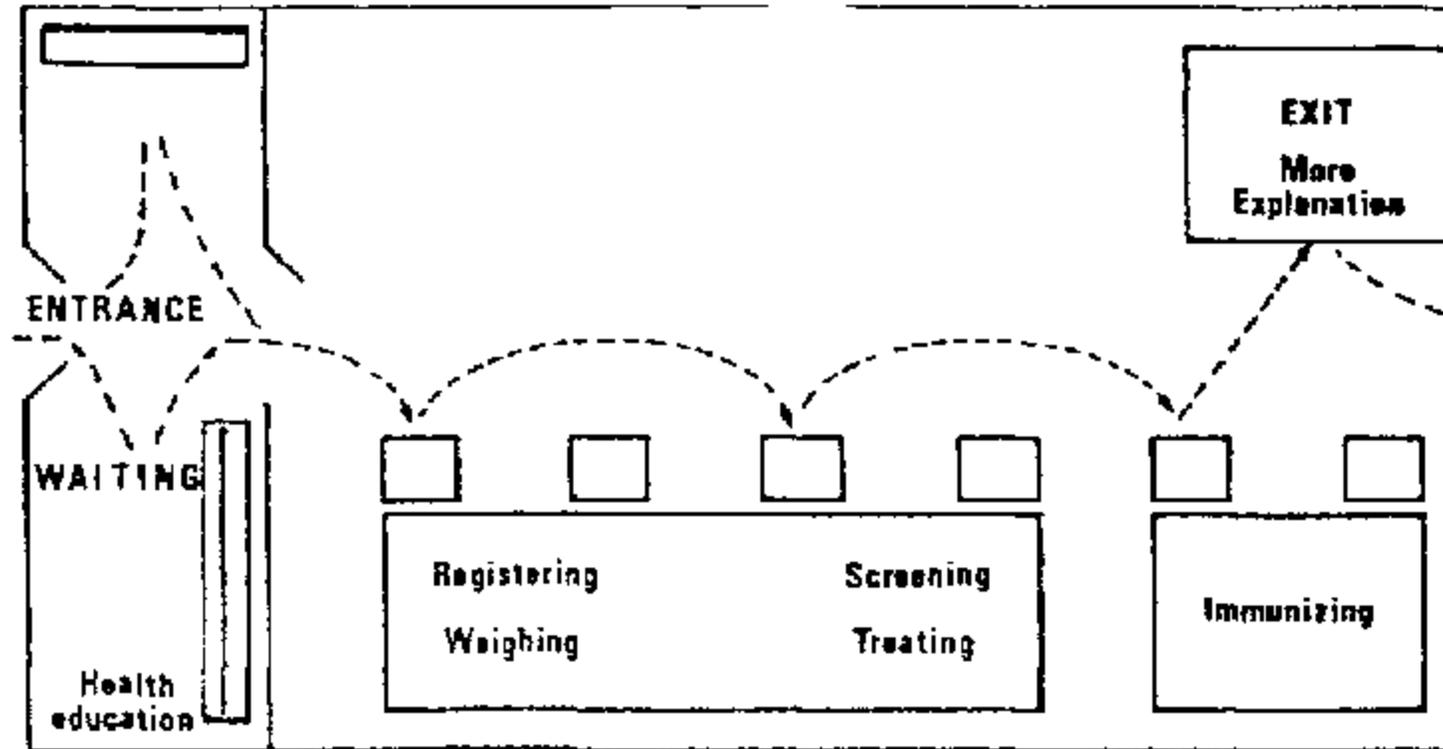
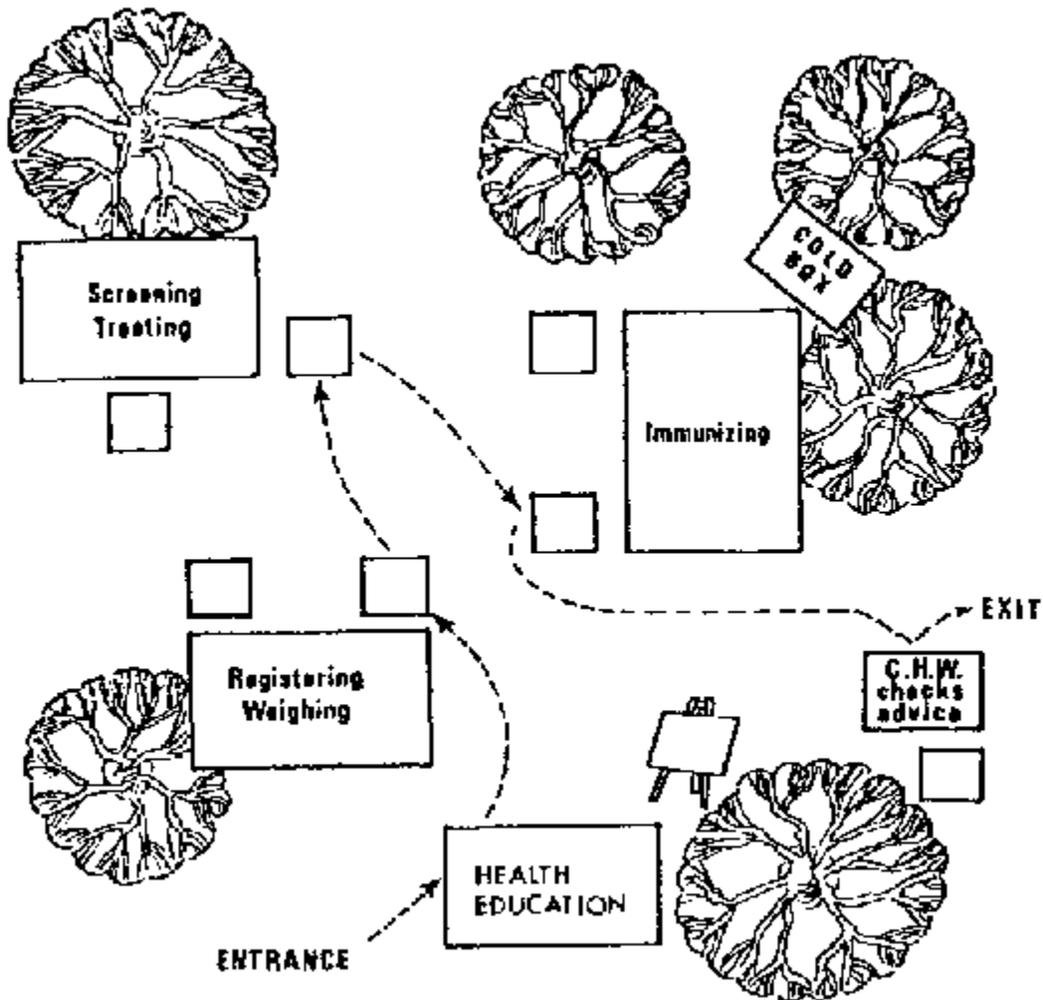


Fig. 5-5: Plan of an immunization site outside under trees



Question 1

Why should you arrange the stations along a path?

Arranging the waiting area

Choose one waiting place outside the immunization site near the entrance. If possible choose somewhere shady. Mothers wait there before they start at Station 1. You can put mats to sit on, and you can give the group health education lesson there.

Make sure that there is somewhere for mothers to wait at each station.

If possible they should be able to sit while they wait without losing their place in the queue. You might use a bench for them to sit and wait on. They can move along as their turn comes.

Arranging each station

You have decided:

- how many stations to have,
- which tasks to do at each station,
- how to arrange the stations at the site.

Now you must arrange each station for its tasks.

To arrange 8 station you must:

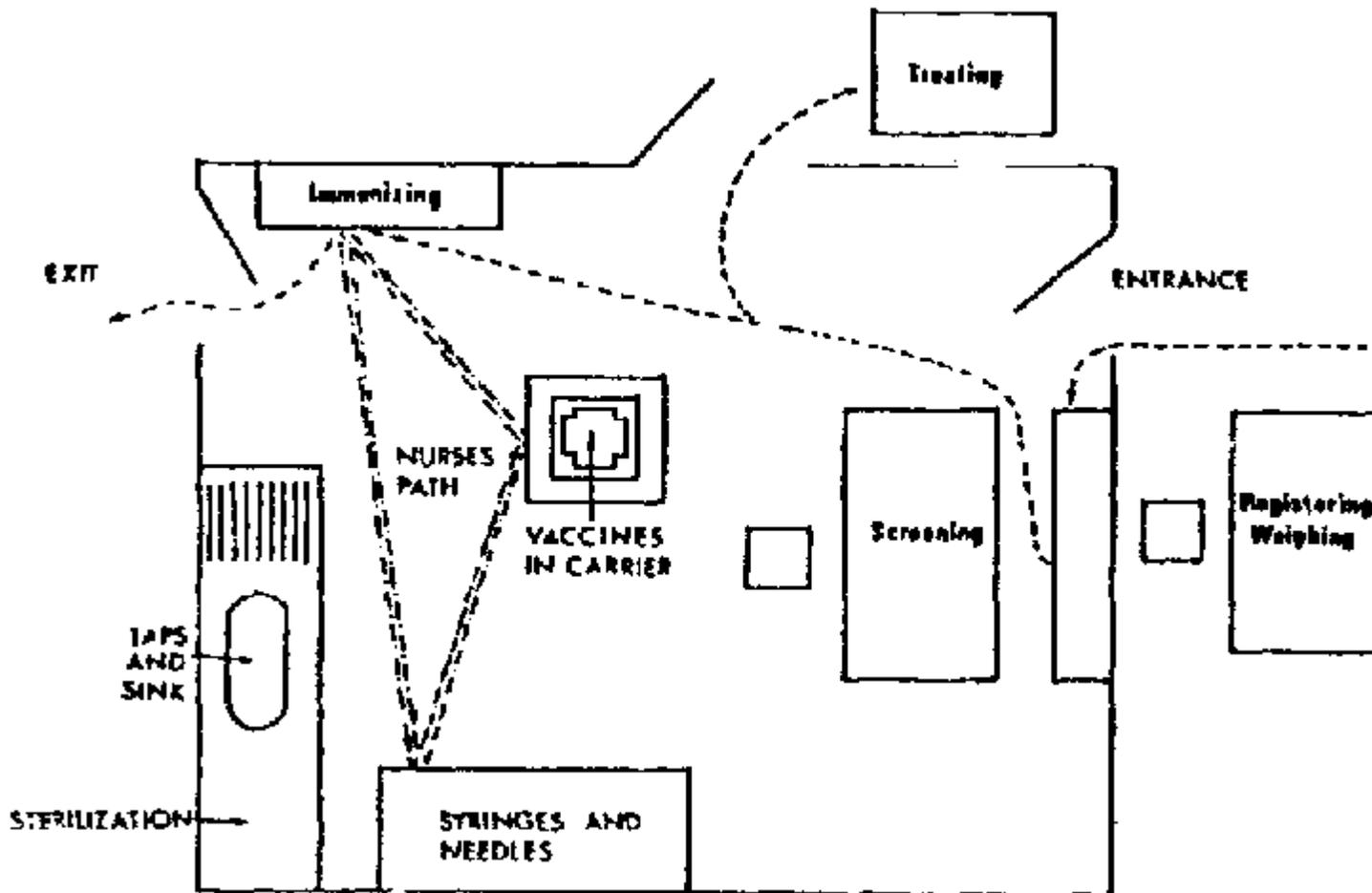
- choose exactly where it will be,
- decide who is to work there.

Sections 5.9 - 5.13, describe for each task in turn:

- what you have to do,
- what you need in order to do it.

Exercise - Ander Health Centre

Fig. 5-6 Ander Health Centre



Study the map of Ander Health Centre

- A helper registers and weighs children outside the main room.
- A community nurse screens them at the table inside the room.

- If someone needs treatment, they go into the next room to another health worker.
- For immunization, the mothers sit on a bench near the exit.
- There are two nurses giving immunizations.

Work out exactly what movements the nurses have to make:

- to collect equipment and vaccines.
 - to give vaccines to children.
- a) What do you notice about how much walking the nurses have to do ?
- b) What changes would you make to the other stations ?

CASE STUDY - Nurse Jose and the date a stamp

Nurse Jose and Mr. Cato ran busy outreach immunization sessions in a well populated district. Nurse Jose registered, weighed and screened the children. She decided which vaccine the child should have today; and she stamped today's date in the space for the vaccine on the growth chart.

Mr. Cato looked at the card, and gave the vaccine with today's date. There was no room for seats for so many mothers. So, they all stood in the middle of the room, or crowded around the stations waiting for their turns.

One day three of the children came for treatment because they had measles. Nurse Jose looked at their growth charts. She found that they all had a date stamped against measles vaccination. She asked the mothers if they had had the injection on that day. They all said "No". One said that she had had tablets instead; one said that she had not been able to 'van'; and one said she did not know that the child needed the injection. Nurse Jose made some enquiries, and found that other children also sometimes missed their immunizations.

Points to discuss

- a) Why did the children not have their measles vaccine ?
- b) What should Nurse Jose and Mr. Cato do about their outreach session ?

5.6 Task 1 - Registering

This task is often combined with screening

Place:	Near the entrance.
Worker:	A helper from the community can do this - perhaps better than a visitor. They must be literate.
Equipment:	Growth chart, or local immunization card, treatment record; ball point pens.
Task:	* Greet the mother in a friendly way.
	* Give each mother the appropriate record card or growth chart, and fill in personal information.

	* Write the child's name, date of birth, and other details on it.
	OR: Check the card that the child already has.

5.7 Task 2 - Weighing

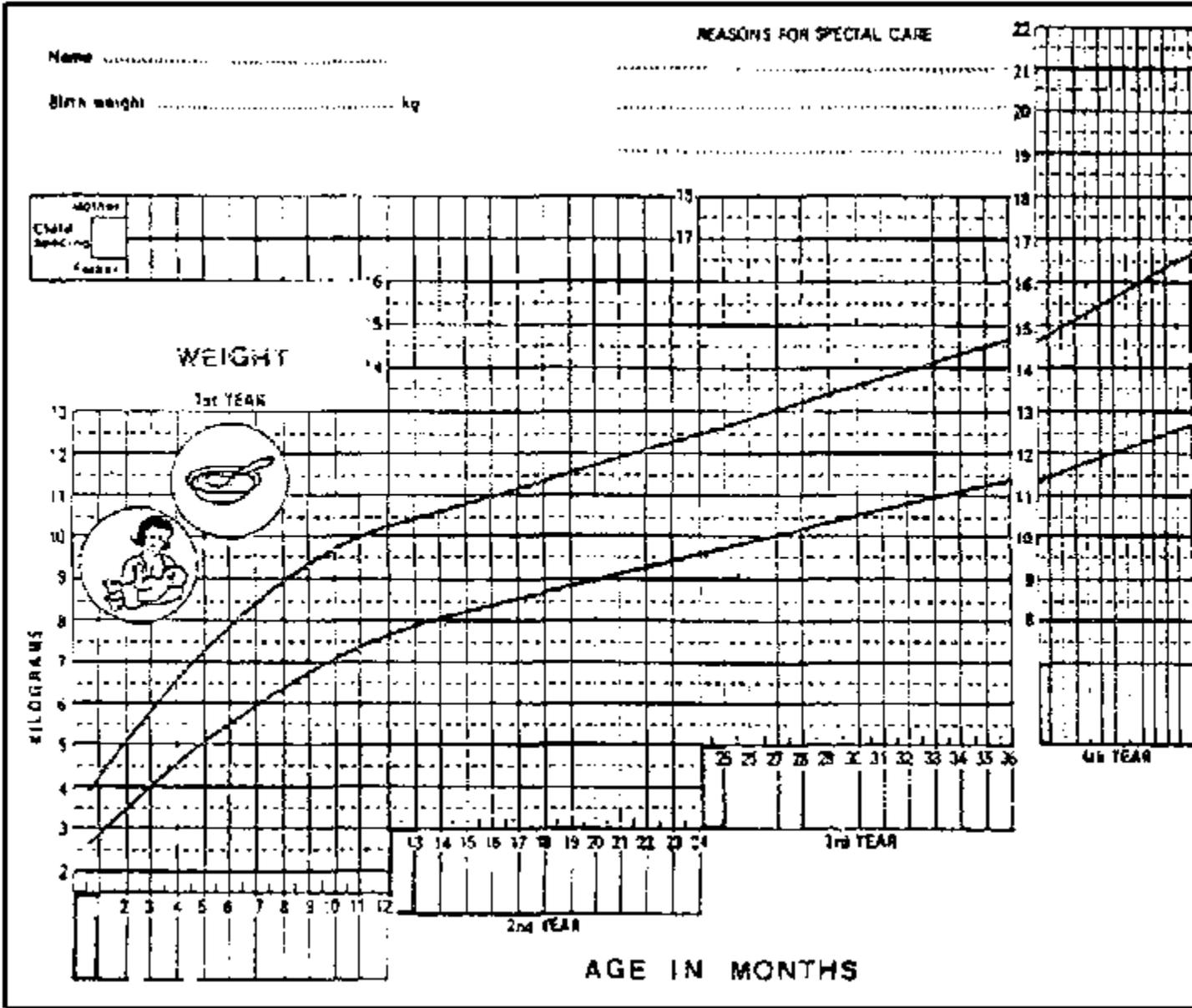
Place:	The station where you weigh must have a place where you can:
	- hang the hanging scales, in a doorway or on a tree for example).
	- or put the table level for "beam balance" scales.
Worker:	A helper from the community can learn to weigh children.
Equipment:	Weighing scales and basket or trousers to put the child in.
Task:	* Adjust the scales to read zero.
	* Weigh the child.
	* Enter the weight on the child's growth chart.
	* Tell the mother something about the result.

A GROWTH CHART is a very important record which includes:

- a personal growth chart for the child
- family details
- a short record of the child's illnesses and progress
- notes about nutrition advice given to mother
- and the child's IMMUNIZATION RECORD.

A Growth Chart is printed on strong card, and it has a polythene envelope to help to keep it clean and readable.

Fig. 5-7: A growth chart



Mothers should keep their child's growth chart

An important part of health education is to teach mothers to keep growth charts carefully.

A mother should bring it to each immunization session, and take it with her if she goes to another dispensary, health centre or hospital.

The back of a growth chart with the section to record the child's immunizations

APPOINTMENT	

Growth Chart

Health centre	Child's No.
Child's name	
Date first seen	Birthday
Mother's name	Registration No.
Father's name	Registration No.
Where the family lives (address) _____	

BROTHER AND SISTERS

Years/birth	Boy/Girl	Remark	Years/birth	Boy/Girl	Remark

IMMUNIZATIONS

TUBERCULOSIS Vaccine - Date _____

Date:

1° dose _____ 2° dose _____

3° dose _____

POLIOMYELITIS Vaccine (OPV)

Date:

1° dose _____ 2° dose _____

3° dose _____

MEASLES Vaccine-Date: _____

OTHER Vaccine (specially with date):

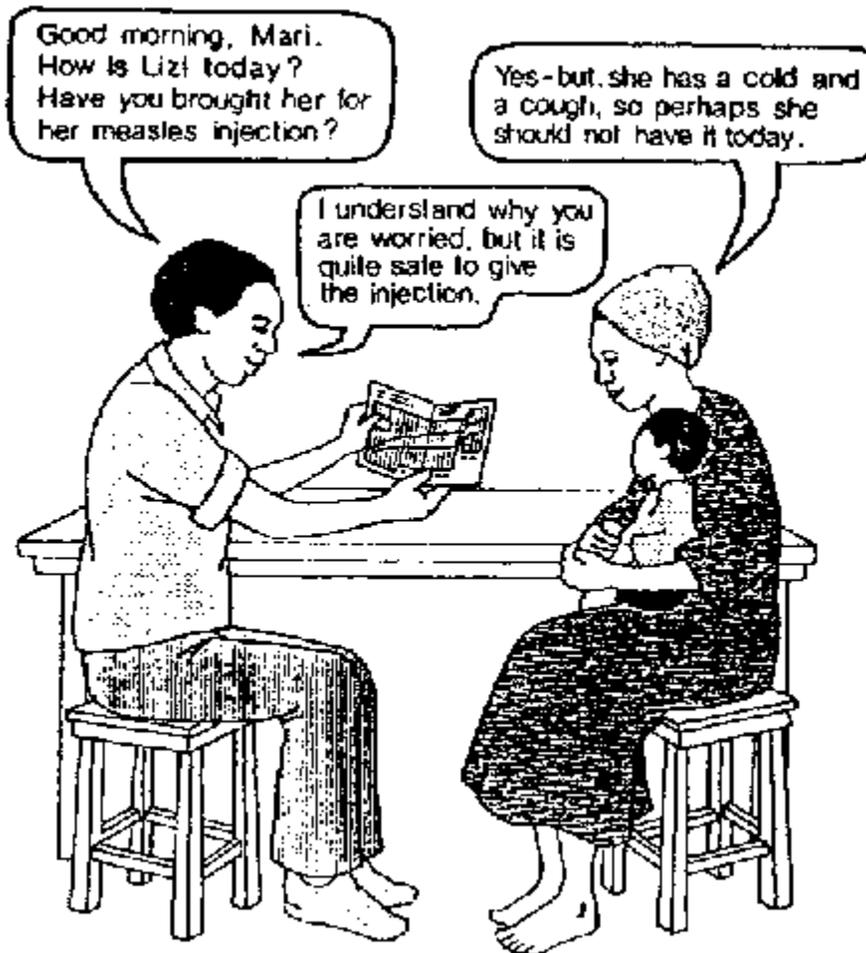
Fig. 5.9: Teaching mothers to keep their growth charts carefully



Question 2

How do Growth charts help health workers to give good health care to children?

Fig. 5-10; Asking each mother about her child



5.8 Task 3 - Screening

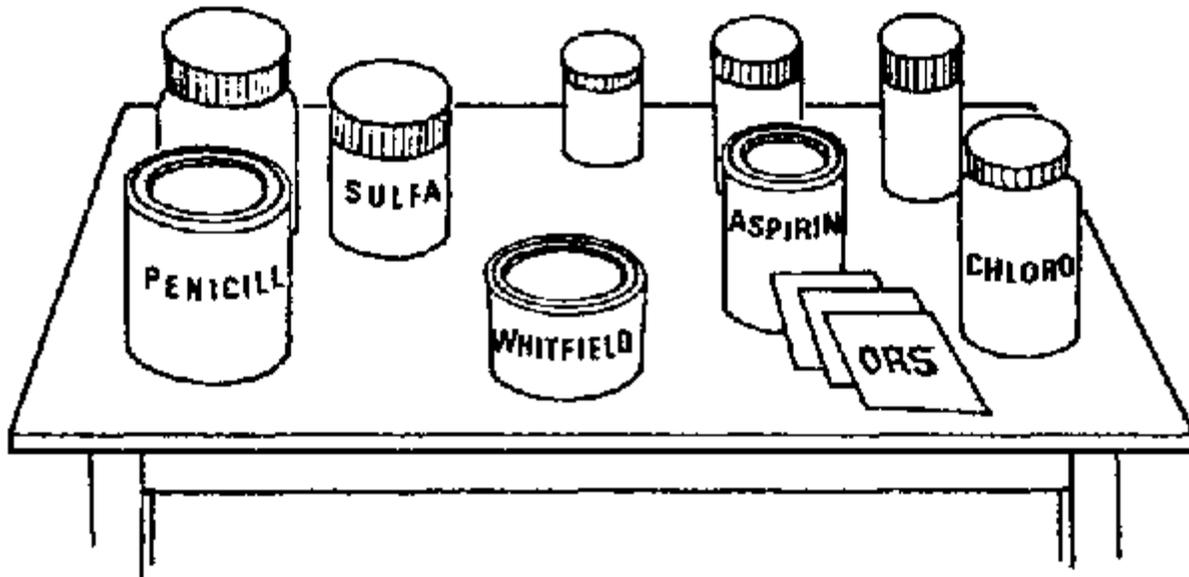
Place:	The mother must be able to sit with the child on her lap. The health worker also must be able to sit for this task.
Worker:	You need your most experienced health worker for this task.
	This person makes the most important decisions.
Equipment:	Torch, Spatula, etc. to examine child.
Task:	* Greet each mother kindly, and compliment her about something.
	* Ask her if the child has any symptoms or if she has any other worries about him.
	* Ask her how she feeds him now.
	* Examine the child.

	* Look at its growth chart - (make sure that it is the child's and not the chart of a brother or sister).
	* Check the BCG place on the first visit after the injection
	- If there is swelling, ulcer, or scar - tick the child's card.
	- If you find no mark, repeat the BCG, and read again at the next visit.
	* Ask the MOTHER if she has had her TT injections.
	* Decide for each child:
	- If they need treatment.
	- Which immunizations are due.
	- The nutrition advice and follow-up that they need.
	* Discuss what you find with the mother. This is a very important part of personal health education Compliment her if the child is well, and if she is breast feeding, and if she has come on the right day.
	- Discuss what you advise - make sure that it is possible for her.
	- Explain when she should come again.
	- If no immunizations are due today, explain why. Find something useful to say so that the visit is worthwhile.
	- Encourage her to look after the growth chart and to bring it next time.
	* Write on each child's card:
	- what you think of their health,
	- your nutrition advice,
	- any other advice,
	- any treatment that you prescribe,
	- a mark to show which immunization they need today.
	- the date when the mother should come again.

Do not write or stamp the date of the immunization. This should be done by the person who gives the immunization.

GREET EACH MOTHER KINDLY
 ASK HER HOW SHE IS, AND HOW HER CHILD IS
 COMPLIMENT HER ABOUT SOMETHING
 ENCOURAGE HER TO LOOK AFTER THE GROWTH CHART

Fig. 5-11: The treatment station



5.9 Task 4 - Treatment

Place:	This station must have a table in the shade if possible.
Worker:	A responsible person from the community can learn to help here.
Equipment:	Medicines for the common diseases in the area. Treatment register.
Task:	* Give the medicines that are prescribed on the child's card.
	* Explain clearly and simply how the mother should give them. This is another important part of personal health education.
	* Register the treatment as your programme requires.

5.10 Task 5 - Immunization - Preparing the station

Place:

The station where you do this task must be shady and as cool as possible to keep the vaccines cool.

Worker:

This must be a person who is trained to care for and to give vaccines. Someone from the community can help - especially to give oral polio vaccine.

Equipment:

The immunization kit in its bag

The vaccines and the ice in your vaccine carrier or cold box

A jug, bowl, or bucket of water to wash your hands

A bucket, box, or folded paper to collect rubbish.

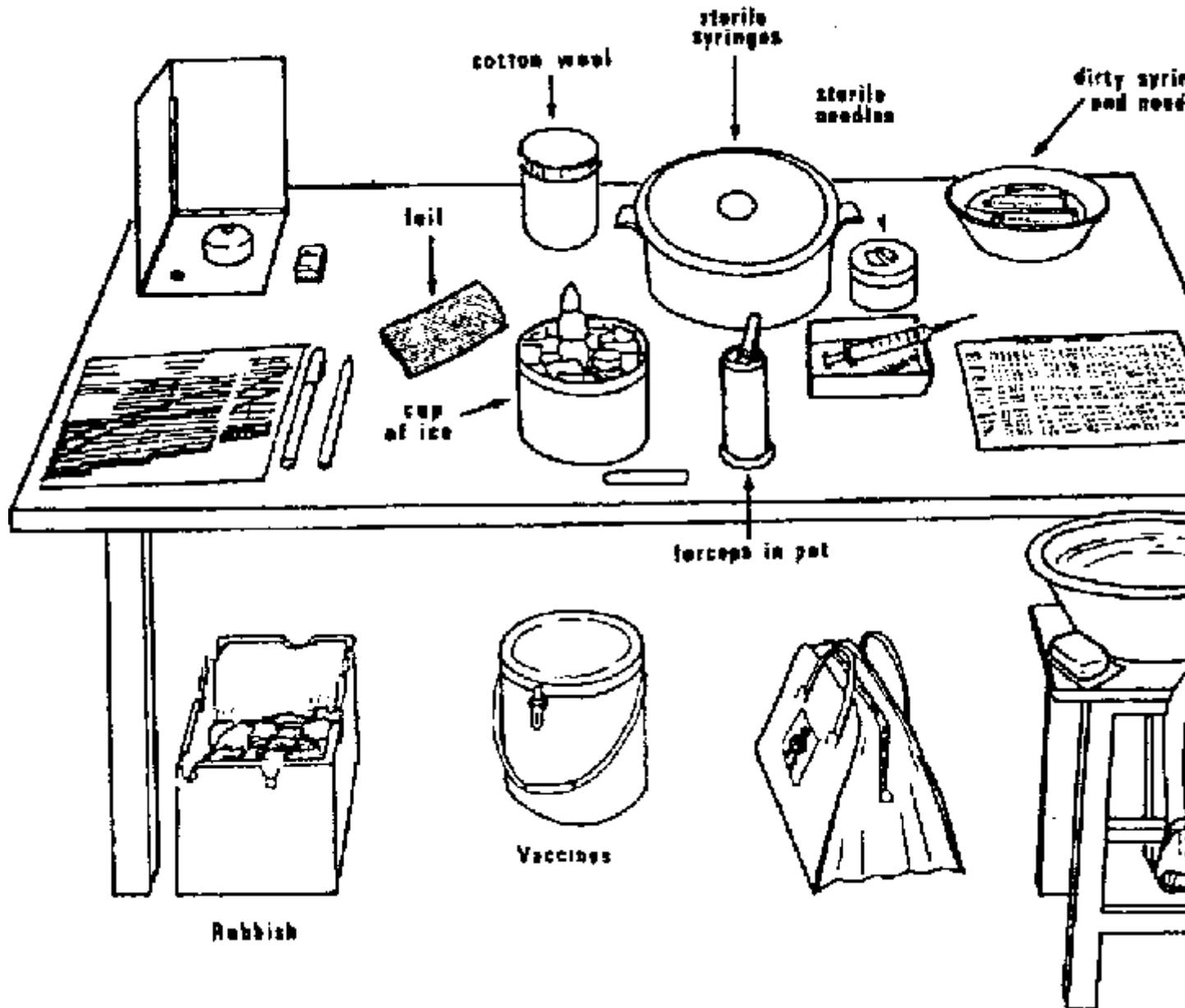
Date stamp and pad, or pen

Immunization Tally Sheet.

Tasks: Immunization is really 3 tasks (at least)

- Vaccine care and preparation
- Giving vaccines to the children (and mothers)
- Recording the vaccines that you have given

Fig. 5-12: Equipment on Immunization Station Table



DO NOT TAKE VACCINES FROM THE CARRIER BEFORE CHILDREN ARRIVE
DO NOT PREPARE VACCINES BEFORE A CHILD IS READY

5.11 Task 5 - Vaccine care and preparation

- * Put the vaccines in the coolest place out of the sun, as soon as you arrive at the site,
- * Keep them there with the lid of the carrier tightly closed
 - until the site and the stations are all ready,
 - the mothers and children have come.
- * Arrange all the equipment from your immunization kit neatly on the table so that you will be able to work efficiently.

* When the stations and the people are ready open the carrier.

Take out:

- some ice for the insulated pot or cup on the table,
- one vial of each of the vaccines and their diluent.

Close the carrier lid tightly and do not open it again until you need a new vial of vaccine.

* Put the vaccines into the pot of ice, especially polio and measles.

There should be some water mixed with the ice. If all the ice melts before the end of the session, throw away most of the water and add new ice from the cold box.

If you do not have ice cubes stand the vaccines on an ice pack.

* Cover BCG and measles vaccines

Wrap them in foil to protect them from sunlight, especially if you stand them on an ice pack.

* Wash your hands

* Reconstitute your measles and BCG vaccines.

5.12 Task 5 - Giving vaccines to children

* Let the mother sit down with the child on her lap. Greet her in a friendly way.

* Look at the child's growth chart or immunization card and find the marks which show you which immunization to give.

Compliment her for bringing the child for immunization.

* Explain to the mother what you are going to do

Make sure that she understands what the immunizations are for.

Explain things BEFORE you give an injection. Afterwards the child will cry, and the mother will not be able to listen.

See attachments at the end of this trainer attachment for information you might include when explaining to the mother what you are going to do.

* Warn the mother about any side effects

Discuss with her what she can do about them.

* Show her how to hold the child

* Wash your hands

* Prepare the vaccines

After you have filled a syringe with vaccine:

- put it in a sterile dish to keep the needle sterile,
- cover it to protect the vaccine from the sun.

* Give the vaccines (Module 4)

Give oral polio first. After he has had an injection, the child may cry and refuse polio vaccine.

Put used syringes and needles into the "dirty" container (There should be water in the container).

CASE STUDY - Hassan's wasted vaccines

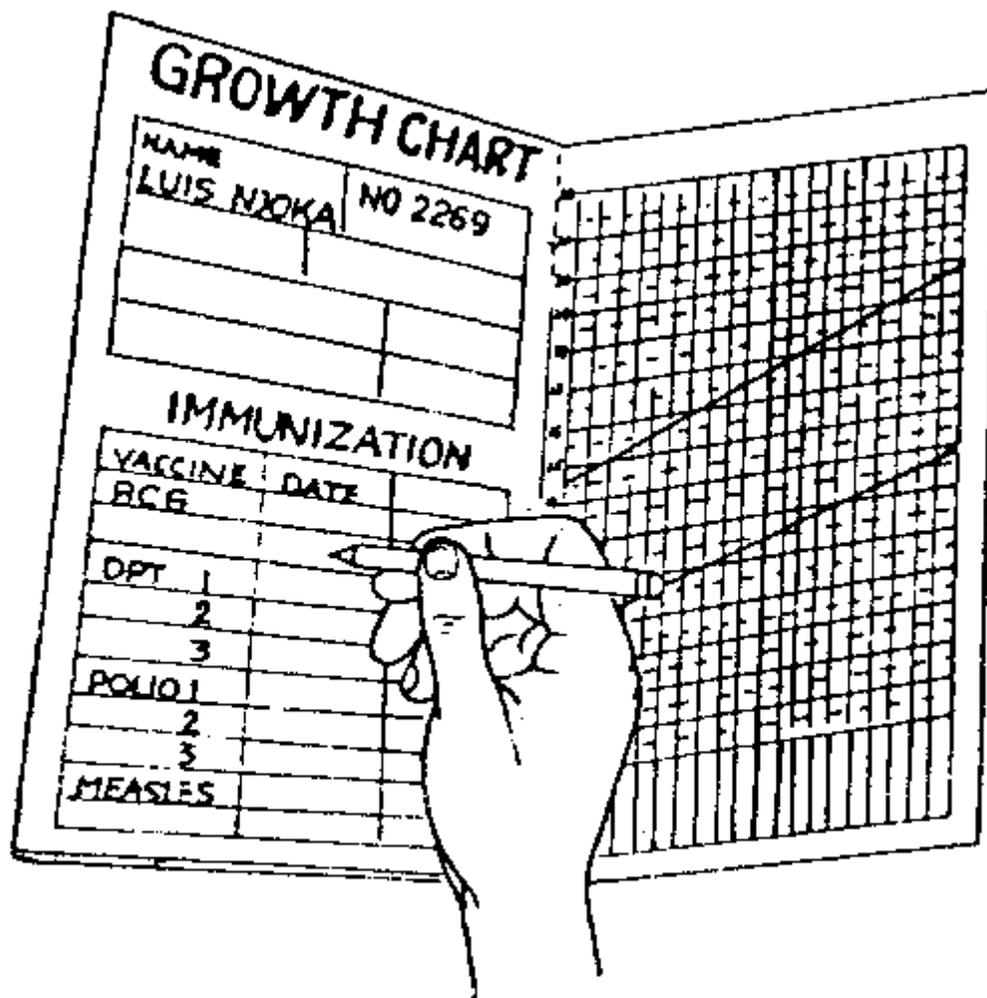
Community Nurse Hassan's Immunization Station was always tidy and correct and clean. His sessions were small, because the population in the district were very scattered. So he did all the tasks himself. He prepared everything before the people came. He reconstituted the measles and BCG; and he opened one vial of OPV, one of DPT, and one of TT and put them in a cup of ice.

At many sessions he only immunized 1 or 2 children with DPT and Polio and often there were no children who needed Measles or BCG and no mothers who needed a TT shot. Hassan kept very neat records. The supervisor thought that Hassan was using too much vaccine and he came to find out why

Points to discuss

- a) Why did Hassan use so much vaccine ?
- b) What did the supervisor tell Hassan to do differently ?

Fig. 5-13: Filling in the immunization section of a growth chart



5.13 Task 5 - Recording the immunizations that you have given

This is a very important part of a vaccinator's job. There are three ways in which you may have to record an immunization.

1. On the Growth Chart (or immunization record).

Put the date - DAY, MONTH, and YEAR, - so that you know when this vaccine was given. Then you will know what to give this child at the next visit.

2. In your "Immunization Record" for your report to your supervisor.

In some programmes, you have to record each immunization in detail, with the child's name, address, age, etc. for your report.

3. On your "Tally Sheet" if these are used in your programme.

This is a quicker, simpler kind of report for your supervisor, and a help for you to evaluate your own work.

THE TALLY SHEET

Many countries use a tally sheet, because it is quicker and simpler than it is to keep detailed records of each immunization. Also, it is easier to count the immunizations given.

A tally sheet is lines of "00000"s in groups of 5.

- There are separate lines for each dose of each vaccine.
- There is a separate section to record vaccines given to children of 1 year old or more.

		PLACE:			DATE:		
		Less than 1 year old			1 year and older		
BCG		00000	00000	00000	00000	00000	00000
DPT	1	00000	00000	00000	00000	00000	00000
	2	00000	00000	00000	00000	00000	00000
	3	00000	00000	00000	00000	00000	00000
POLIO	1	00000	00000	00000	00000	00000	00000
	2	00000	00000	00000	00000	00000	00000
	3	00000	00000	00000	00000	00000	00000
MEASLES TT		00000	00000	00000	00000	00000	00000
	1	00000	00000	00000	00000	00000	00000
	2	00000	00000	00000	00000	00000	00000

Write the place and date at the top of the sheet at the beginning of your session. Then, each time you give a vaccine, cross off one of the "0"s along the line for that vaccine, like this:

	PLACE: Mugumo Village	DATE: 22 June 1984
	Less than 1 yea old	1 year and older
BCG	ØØØ0 00000 00000	Ø0000 00000 00000

To know now many children you have immunized, add up all the "0"s that have a line through them. If there are many, you can count up in groups of five.

Completing your records at the end of a session

- Count up from the tally sheet (or other record), how many immunizations you have given.
- In some programmes you also have to "tally" the children who have completed all their

immunizations.

- Tally the amount of vaccine that you have used (which includes what you throw away).
- Give all the results to your supervisor at the end of the month.

<u>Question 3</u>
Why do you have to record and report the immunizations that you have given?

Exercise - Tally Sheet from Kopang

1. How many people in Kopang had each vaccine on this day ?

		PLACE: Kopang			DATE: 16 March 1984		
		Less than 1 year old			1 year and older		
BCG		ØØØØØ	ØØØØØ	ØØØØØ	ØØØØØ	ØØØØØ	ØØØØØ
DPT	1	ØØØØØ	ØØØØØ	ØØØØØ	ØØØØØ	ØØØØØ	ØØØØØ
	2	ØØØØØ	ØØØØØ	ØØØØØ	ØØØØØ	ØØØØØ	ØØØØØ
	3	ØØØØØ	ØØØØØ	ØØØØØ	ØØØØØ	ØØØØØ	ØØØØØ
POLIO	1	ØØØØØ	ØØØØØ	ØØØØØ	ØØØØØ	ØØØØØ	ØØØØØ
	2	ØØØØØ	ØØØØØ	ØØØØØ	ØØØØØ	ØØØØØ	ØØØØØ
	3	ØØØØØ	ØØØØØ	ØØØØØ	ØØØØØ	ØØØØØ	ØØØØØ
MEASLES TT		ØØØØØ	ØØØØØ	ØØØØØ	ØØØØØ	ØØØØØ	ØØØØØ
	1	ØØØØØ	ØØØØØ	ØØØØØ			
	2	ØØØØØ	ØØØØØ	ØØØØØ			

2. Draw your own tally sheet (Or - use a real tally sheet from your programme)

Fill in the sheet for Kopang Village, on May 7th 1985 for the following immunizations:

- Tetanus toxoid - First dose 8, second dose 7.
- DPT - First dose 11, second dose 13, third dose 6, (all less than 1 year old).
- Polio - First dose 11, second dose 13, third dose 6, (all less than 1 year old).
- Measles - 14 aged 9-11 months, 2 aged 14 months, 1 aged 17 months.
- BCG - 12 aged 1 month, 2 aged 15 months.

5.14 Task 6 - Explanation and the exit station

(Personal health education and group teaching are discussed in more detail in Module 6).

Place:	At every station where someone explains something.
	For a very large session, you may also have an "Exit Station" near the exit.
Worker:	Everybody - health workers; helpers; contact person.
	An experienced helper from the community can work at the "Exit Station".
Equipment:	A smile.

Tasks at the Exit Station:

* Look at each child's card and check that the mother:

- Has attended all the other stations.
- Knows what vaccines they gave today.
- Knows when to come again.
- Knows any side effects to expect from the vaccines, and what she can do if it happens.
- Knows about the treatment that she has to give.
- Understands any nutrition advice and follow up plans written on the card.

* Discuss with the mother that it is important:

- to keep the card carefully,
- to bring the card the next time,
- to bring the child for immunization if it is sick or well.

CASE STUDY - Kazi the friendly vaccinator

On Wednesday Kazi arrived at the outreach site, with his vaccine carrier and equipment bag. He badly wants a cigarette. But it is already after 9.30, and there are a lot of mothers waiting. So he lights his cigarette, and starts to prepare for the immunization session while he smokes.

Kazi chats in a friendly way to the mothers while he works. There is only one shady place, and the women are already sitting there. He feels bad about keeping the women waiting, so he lets them stay in the shade, and sets up his table in a sunny place.

There are more mothers than usual today, so he opens the vaccine carrier and takes out 2 vials of measles vaccine and diluent; one ampoule of BCG and diluent; two "oral polios", and two "DPTs". He reconstitutes the BCG and both vials of measles vaccine and gives them a good shake. He puts them carefully into a sterile kidney dish on the table, with the vials of "oral polio".

Kazi is hurrying so much that he drops his forceps on the ground. He puts them into the container for dirty syringes, and picks things up with his fingers. He is careful to pick up both syringes and needles by their adapters. ("It will be alright if I don't touch the other parts", he

thinks).

While he is filling a syringe with vaccine, some cigarette ash falls into the pot of sterile needles. Luckily, the mothers do not seem to notice. He puts the loaded syringes into the vaccine carrier to keep cool, and he leaves the lid partly open. "Otherwise the DPT might freeze", he thinks.

Now he is ready to start immunizing. He starts with the measles, and he uses the same syringe for each child, and carefully "flames" the end of the needle between children. Just as he is giving the fourth injection, his supervisor arrives, looking rather angry.

Points to discuss

- a) List all the things that Kazi did wrong.
- b) The supervisor arranged a short refresher course to retrain Kazi and some other vaccinators who were also making mistakes.
- c) Re-tell the story of Kazi's day, when he went to Kalo Village after he attended the refresher course. Make him do everything correctly. (You can work with your colleagues to write the correct story).

Fig. 5-14: Collecting the rubbish



5.15 Leaving an outreach immunization site

- * Return the tables and chairs to their proper places and owners.
- * Clean the site.
- * Collect up your rubbish.
 - Put all the empty vials and ampoules and the wasted vaccine that you cannot use into a plastic bag, or other suitable container. You can empty out half used ampoules of BCG onto the ground. The sun will soon destroy the vaccine.
 - Take the rubbish back to the health centre to throw away safely.
 - Do not leave any vials on the ground. They may break and cut somebody's feet, or a child may put the glass in its mouth.
- * Clean your equipment.
 - If you have time, and if there is water, clean your syringes and needles before you leave the site.
- * Thank your contact person, and tell them when you will come next.

LEAVE THE SITE TIDY
COLLECT UP YOUR RUBBISH
THANK YOUR CONTACT PERSON

5.16 How to pack up your vaccines

*Put back into the carrier only the vaccines that you can use again.

*Do not put back the wasted vaccine or the empty vials that you will throw away. They are warm, and they will make the ice melt more quickly.

* Check that there is still some ice that has not melted:

- ice cubes - you can see them.

- ice packs - SHAKE and LISTEN - if the ice has melted, you can hear the water splash.

If you put a thermometer into the carrier, check the temperature. This is not necessary if there is plenty of ice left.

Continue to keep the carrier TIGHTLY CLOSED AND IN THE SHADE all the way back to the health centre.

* Go straight back. Do not delay on the way.

Fig. 5-15: Checking that there is still some ice in the ice packs



Which vaccines must you throw away?

* Measles, BCG and polio: If they are out of the vaccine carrier, throw them away at the end of the session.

* DPT and TT: In most programmes you throw these away if they are opened, because it is difficult to keep them sterile.

* Ail vaccines: If the ice in the carrier has all melted:

Which vaccines can you keep to use again ?

* Keep the vaccines which stayed in the carrier

- if there is STILL SOME ICE which has not melted;
- and if the temperature in the vaccine carrier is STILL BELOW +8°C.

5.17 When you are back at the health centre:

Return the vaccines

- Check again that there is ice in the vaccine carrier. Check the temperature of the vaccines in the carrier. (This is not necessary if there is plenty of ice.)

- If there is still ice in the carrier, or if the temperature is still between 0°C and +8°C, the vaccines are in good condition.

- Mark the vials or ampoules of those vaccines, and put them into the "RETURN" box in the refrigerator. Use them FIRST next time.

You should not use vaccines that have been in and out of the refrigerator more than three times. Throw them away.

- If the ice in the ice packs has melted, check the temperature. If the temperature is above +8°C; or if you have no thermometer, throw away all the vaccines.

Put the ice packs back in the freezer

- Check that there are enough ice packs and ice cubes there for your next session.

If you already put the spare ice packs into the freezer before you went out, put the "return" ice packs onto the lower shelf of the main compartment.

- If you are in charge of the refrigerator: After you have put back the vaccines, diluent and ice packs, check and record the temperature of the refrigerator.

Throw away your rubbish safely

If the local authority collects waste, wrap the immunization rubbish firmly and put it into the collecting bin.

If they do not collect, wrap and bury your rubbish in a good rubbish pit. Do not just throw the rubbish into a pit. Bury it deeply and completely in soil.

Clean your equipment

Vaccine carrier:

Clean it, and leave it open to dry. Check that there are no cracks in the insulation - especially after a long bumpy journey. If there is a crack, repair it with tape.

Syringes, needles, containers and forceps.

If you were not able to clean your instruments at the site, do it now. If you have time, sterilize them also.

Information for explaining to mothers what you are going to do

• Describe what immunizations are being given and why. The following information may be useful to you in educating the mothers:

a. Measles and Measles Vaccine

- Measles is a dangerous sickness. It gives children a rash and fever.
- It kills children.
- It makes some children blind.
- Children are often very thin and feeble after an attack of measles.
- Children who get measles and recover will not get measles again. Their body has learned how to fight it.
- Measles is caused by small living things we cannot see (germs). These germs grow in your body and damage it.
- It travels from one sick child to another child through the air from the nose and mouth of the sick child. After a while it makes another child sick too.
- Once a child has measles, it is hard to help him.
- The best way to help your child fight measles is for him to get one special injection when he is well. This injection has weak measles germs that will teach your child's body how to fight measles without giving him the very bad sickness. Then your child's body will know how to fight the measles sickness and he will not get measles.
- The injection will be given in his thigh, hip or arm,
- Sometimes a child who gets the special measles injection will have a fever or a rash a few days after the injection. This is weaker than the bad measles sickness and it means that the special injection is teaching your child how to fight measles.
- You should bring your child to get the special injection when he is about 9 months old. If he is too young, the special injection will not work. But if he waits too long he may get the measles sickness first, and the special injection will not be able to help him.
- When you know of a child who has measles, you should tell the health centre nurse so he/she can protect other children.

b. Tetanus, Whooping Cough, Diphtheria and DPT Vaccine

- Tetanus kills many children by tightening up all their muscles.
- Children get it when dirt or cow dung touches a sore or open cut on their body. Example: when the "umbilical cord" is cut with a dirty knife or gets cow dung or dirt on the cut end

- Whooping cough makes young babies cough so much they cannot eat or breathe. They often vomit and may even die.
- It goes from the sick child into the air when he coughs and into another child or baby who is close by. The child then gets whooping cough 7-10 days later.
- Diphtheria sometimes kills children by stopping their throat muscles from working so they cannot eat or breathe.
- This disease also goes from one sick child to another through the air (or from the mouth).
- All three of these diseases are also caused by very small living things we cannot see (germs).
- Your child should get special injections to teach his body how to fight all three of these diseases at the same time. Because his body will learn how to fight these diseases slowly, your child must get the injection three different times, to make his body strong against all three diseases. If he only gets this injection once, his body will not be able to fight these diseases.
- Your baby's body can start to learn how to fight these sicknesses when he is a few months old. You should bring him to the vaccination sessions so that his body can start learning to fight them before he catches one of them.
- After your child gets this injection, he may get a small fever for a few hours. He may get a small lump under his skin where the injection is given in his thigh or hip, but the lump will go away in a few weeks.

c. Poliomyelitis and Polio Vaccine

- Poliomyelitis-can cause lameness of legs and weakness of arms. It often kills children.
- Some children recover and will not get it again.
- It sometimes causes their arm or leg to shrink and become weak so they cannot walk or work well when they grow up.
- It is caused by small living things we cannot see (germs).
- It goes from one child to another child, usually by dirty hands or dirty water.
- Once a child gets polio, it is hard to help him.
- The best way to help your child fight polio is for him to get a special medicine put in his mouth. This medicine has weak polio (germ) that will teach your child's body how to fight polio without giving him the bad sickness.
- Your child's body will learn how to fight polio very slowly so he needs to get the medicine when he is very young, and come back to get it again two times after that. Then his body will know how to fight polio very well.
- The medicine is put in his mouth and will not make him sick at all.

- Your child's body can start learning how to fight this disease when he is a few months old, so you should bring him soon after that to get his first medicine. He can be given an injection at the same time to start teaching his body how to fight three other diseases,

- When you know of a child who has polio, or if many people get that sickness, you should tell the health centre nurse so she can protect other people.

d. Childhood Tuberculosis and BCG Vaccine

- Tuberculosis is sometimes called "dry cough."

- It is also caused by small living things we cannot see (germs).

- If young children catch tuberculosis the germs may go to the brain. This:

May kill them.

May make them very sick.

May leave them lame if they do get better.

- When a man or a woman gets this disease it makes them cough a lot. Sometimes they cough up blood.

- The disease goes in the air from sick people who cough. Children and other people nearby will breathe in the germs and get the disease.

- Your child can get a special injection to teach his body how to fight tuberculosis. This special injection has weak germs that are different from the germs that cause tuberculosis. These weak germs can teach your child's body how to fight tuberculosis but they cannot give him the sickness

- Your child should get this special injection before he is 1 year old. Then his body will be stronger to fight this sickness.

- After your child gets the injection he will get a small sore on his arm after 2 weeks. It will last for about 2 months and then go away. You should not put anything on it. Sometimes a child will get some lumps under his arm near where the injection was given. These also go away by themselves. If they last too long the nurse can give him medicine to make them go away faster.

- There are good medicines to treat people who get this disease' but it is best to protect them from getting it at all by giving them 8 vaccination when they are young.

• Describe possible side effects, what they are, and what to do if they occur.

- DPT and tetanus toxoid - may cause a little pain and swelling where they are injected. This will get better in less than 2 days. Sometimes the child may have a slight fever for 1 or 2 days.

- Measles vaccination - often causes a fever which lasts for 1 or 2 days, 6-10 days after the vaccination. It is usually only mild and is no cause for alarm. There may also be a slight rash for 1 to 3 days.

- BCG - always causes a small ulcer to appear on the arm. This takes about 2 to 3 months to heal. As long as it is kept clean it will cause no trouble, but it should not be covered with cream or ointment. On rare occasions the vaccination causes 8 swelling in the armpit. This is painful and may make the child unwell, but unless it becomes very large or stays for a long time there is no need to do anything about it.

(From: WHO EPI Training Materials)

Session 36, Trainer Attachment 36C: Immunization cards assessment

Below is an example of a vaccination card. For the exercise in Step 8, you should:

- Complete four of these cards, or vaccination cards used in the host country, with the information found on the next page.
- Make 12 copies of these cards to distribute to the three working groups formed in Step 8.
- Read or write out on newsprint the scenario on the following page.
- Tell the group they have 20 minutes to assess the cards to determine what immunizations each child needs, and record this and any recommendations or comments on the cards.

The recommendations that the groups should make concerning the vaccinations to be given to each child is provided on the bottom of the next page.

VACCINATION CARD			
Name			
Name of Mother			
name of Father			
Male or Female			
Birthdate	day	month	year
Name of Village			
VACCINES	DATE GIVEN		
	day	month	year
DPT and Polio I			
DPT and Polio II			
DPT and Polio III			
BCG I			
Measles			

DT			
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SCENARIO AND INSTRUCTIONS FOR COMPLETING VACCINATION CARD

You are at the screening table of an MCH clinic. The date is December 3, 1984 (03/12/84).

Children are coming in with their vaccination cards.

Look at the immunization data recorded on the cards. Make a check in front of the correct spaces to show what vaccines each child receive. Record any recommendations/comments or contradictions necessary in the blank space at the bottom of the cards.

The vaccinator will write the current date behind the check as soon as the immunization has been given.

Example

Information previously recorded on Vaccination Card:

Child's Name	Date of birth	BCG	DBT ₁ and Polio ₁	DBT ₂ and Polio ₂	DBT ₃ and Polio ₃	Measles	Illness on day of visit
# 1	01/12/83	01/12/83	12/01/84	23/02/84			03/12/84 - fever and cold
# 2	03/02/84		16/03/84	30/04/84	11/06/84		11/06/84 - diarrhea
# 3	11/11/83	04/01/84	26/12/84	08/02/84	22/03/84	had disease	
# 4	01/01/83	01/01/83					

Vaccinations to be given during clinic visit based on above information:

Child's Name	Vaccines to be given	Recommendations and/or Contra-indicators
# 1	DPT ₃ and Polio ₃ and measles	None - Fever and cold are not reasons to postpone immunization.
# 2	BCG, Polio ₃ and measles	Polio ₃ needs to be repeated as child had diarrhea on 11/06/84
# 3	Measles	Unless case was confirmed by a physician immunization should be given.
# 4	BCG, DPT, Polio and	Return in 4 weeks for DPT ₂ and Polio ₂ .

Session 37: Visiting a health clinic

TOTAL TIME: 4 hours

OVERVIEW

Session 37 is the second of a two-part series of sessions on the delivery of immunizations. In this unit, participants visit a health center where immunizations are being given. They observe the organization of the clinic in terms of physical setting, staffing, and tasks that are being carried out. In small groups they review health records and evaluate the maintenance of the cold chain. Upon their return to the training center they report on the tasks and skills they observed during their clinic visit and prepare summary reports of their trip.

OBJECTIVES

- To attend an immunization clinic. (Step 2)
- To evaluate job tasks that are carried out in a clinic. (Step 3)
- To prepare and present a report on the visit. (Step 4)

RESOURCES

Handout:

- 36A Task Analysis Worksheet (from Session 36)

PROCEDURE

Trainer Note

Ask participants to assemble the materials (vaccination schedules, task analysis worksheets, cold chain handouts, etc.) distributed as guides for their observations in this session.

Step 1 (20 min)

Assigning the Task for Visiting an Under-Fives Clinic

Explain to the group that they will be visiting a health center that is vaccinating young children and possibly pregnant women. Tell the group that the clinic personnel have granted permission for them to:

- Observe the tasks conducted during an immunization session
- Review health records
- Ask clinic personnel questions concerning their job related tasks.

Ask the participants if they have any questions concerning their assignment or the handout materials they received in Step 9 of Session 36.

Tell them that upon return from the health clinic they should complete a task analysis form (Handout 36A) for the person and task they observed and be prepared to give a presentation of

their findings. Tell them a short time will be allotted for them to prepare their reports upon their return from the clinic.

Step 2 (2 1/2 hours)

Visiting an Under-Fives Clinic

Upon arrival at the clinic, introduce the director of the clinic to the participants. Next, tell the participants to spend approximately one-half hour at each station in the clinic observing, listening, and assessing the tasks that are being carried out.

Step 3 (20 min)

Assessing the Information

When everyone has returned to the training site, ask participants to reform their groups again according to the task they observed. Ask each group to prepare a short report summarizing their visit and addressing the following questions:

- What are your general reactions to What you saw?
- Which of the eight tasks were done?
- What new tasks were observed?
- Which tasks were done well, and which not so well?
- What suggestions for improvement would you make?
- What were the attitudes of the health workers toward the client and toward their job?

Step 4 (30 min)

Reporting Their Findings

Ask one person from each group to present, their report. After each group presentation, examine the findings. End the activity by having the group respond to these questions:

- How does the knowledge of what actually goes on in a clinic relate to what you've been told are the criteria for a successful vaccination session?
- What modifications, if any, would you suggest to help the clinic run more smoothly?
- How would you as "outsiders" propose changes you think should be made in preparing for and conducting future clinics?
- Were there any activities that drew your attention?
- Do you see a role for yourself in such a setting?

Session 38: Program considerations for malaria control

Session 38, Handout 38A: Background information on malaria

Session 38, Handout 38B: Treatment schedule for malaria

Session 38, Trainer Attachment 38A: Revised recommendation for preventing malaria in travelers to areas with chloroquine-resistant plasmodium falciparum

Session 38, Trainer Attachment 38B: KAP household questionnaire on malaria

TOTAL TIME: 2 hours, 30 minutes

OVERVIEW

Malaria is a major cause of illness and death in Sub-Saharan Africa. Although persons of all ages can get malaria, two groups are at high risk: children under five years of age and pregnant women. To reduce the effects of malaria on these high risk groups, certain types of treatment are necessary. For pregnant women it is important to provide prophylactic treatment with drugs such as chloroquine in order to prevent the risk of abortion of the fetus or low birth weight of the neonate. In areas where malaria is endemic, it is recommended that "presumptive" treatment be given to young children, that is, to treat all young children with drugs when it appears that the fever is due to malaria and that the child will respond to treatment with chloroquine (or other appropriate medications in the case of chloroquine-resistant areas). In this session the participants learn to recognize the signs and symptoms of the disease, become familiar with the types of treatment (presumptive and prophylactic) recommended to reduce the effects of malaria on the aforementioned high risk groups, and learn recommended actions in chloroquine-resistant areas). They then design health education activities for promoting the recognition, treatment and prevention of malaria as a way of applying technical knowledge about the disease and information concerning the knowledge, attitudes and practice of the local people.

OBJECTIVES

- To describe the signs, symptoms, modes of transmission and treatment of malaria. (Step 1)
- To identify the two groups of persons at highest risk. (Steps 1, 2)
- To select appropriate treatment measures to reduce the effects of malaria on the health of high risk groups. (Step 2)
- To develop appropriate health messages, based on information collected through RAP Surveys, for promoting recognition and treatment of malaria in the community. (Steps 3-5)

RESOURCES

Control of Communicable Diseases in Man

Handouts:

- 38A Background Information on Malaria
- 38B Treatment Schedule for Malaria

Trainer Attachment:

- 38A Revised Recommendation for Preventing Malaria in Travelers to Areas with Chloroquine-Resistant Plasmodium Falciparum
- 38B RAP Household Questionnaire on Malaria

MATERIALS

Cardboard, colored pens, tracing materials, newsprint, poster material

PROCEDURE

Trainer Note

In advance of this session, either (a) invite a qualified guest speaker to present a brief lecturette (Step 1) concerning the transmission of malaria and control measures used in the host country, or

(b) select a participant to prepare the lecturette. Refer the speaker to Handout 38A (Background Information on Malaria) Helping Health Workers Learn and Where There is No Doctor (p. 26 and pp. 186-187) for ideas on how to present this lecture and for possible sources for visual aids that can be adapted for use during this presentation.

In this lecturette, information concerning the availability of chloroquine, how and where it is distributed (clinic, pharmacy, on the street), and cost to patient should also be included. You should obtain this information beforehand and either ask the lecturer to include it or add it as a supplement to the lecture.

You should also find out from the MOH or WHO if the area to which the participants will be assigned is considered to be chloroquine-resistant, and if so, what the policies are concerning the drugs to be used and dosage per kilogram base. This information should be presented in Step 2. Trainer Attachment 38A (Revised Recommendation for Preventing Malaria in Travelers to Areas with Chloroquine-Resistant Plasmodium Falciparum) has been provided to give you the most recent information concerning CDC recommendations on the use of chloroquine and Fansidar for travelers. You should not distribute this attachment to the participants; it is provided only to give you technical information for answering questions on this subject if the occasion arises.

Step 1 (25 min)

Lecturette on Malaria

Introduce the Guest Speaker or the participant-who has been selected to present a brief lecturette on malaria. Ask the participants to hold questions until the end of the presentation.

Trainer Note

The points that should be covered during this lecturette are:

- The signs and symptoms of malaria
- Mode of transmission
- Overall methods of control (drug prophylaxis, mosquito control, individual protection)
- Resistance
- High risk groups

Handout 38A (Background Information on Malaria) has been prepared not only as a guide to be used in the presentation for Step 1 but also as handout to be given to the participants at the end of the lecturette. Along with, or in lieu of, distributing Handout 38A you should refer the participants to the section on malaria in Control of Communicable Diseases in Man as another useful source of basic information on malaria.

Step 2 (15 min.)

Presumptive and Prophylactic Treatment of Malaria

Distribute Handout 38B (Treatment Schedule for Malaria) and have the participants review the schedule and ask any questions they may have on:

- how to interpret the forms
- when to use the information

Explain that although persons of all ages get malaria, two groups are at higher risk: children under five years of age and pregnant women. Tell the participants, while they are reading the form, that two treatment measures are recommended. One form of treatment is called "Presumptive" because, without examining a blood smear to confirm the presence of parasites, it is presumed that the fever is caused by malaria. This form of treatment is what should be given to children who have fever and/or other signs and symptoms of malaria. "Prophylactic" treatment, which means preventing infection or illness, should be offered to pregnant women.

Trainer Note

The information on chloroquine dosages in this unit assumes that tablets of 100 milligrams base will be available. Chloroquine tablets contain chloroquine salts (usually phosphate or sulfate). The "milligrams base" in the tablet is the weight of the active ingredient, chloroquine, by itself.

Health workers who administer chloroquine should always read the label on the chloroquine container so they will know the milligram base in each tablet. If the tablets of some other chloroquine formulation are used, the number of tablets per dose should be changed to provide the appropriate number of milligrams of chloroquine base. Tell the group if the area where you are living is assumed to be chloroquine resistant, and describe the measures for malaria treatment and control recommended by the Host Country Government.

Other points to stress when discussing the treatment of malaria are:

- People should presume that most fevers are caused by malaria.
- People should seek prompt treatment.
- The medicine should be taken as directed.
- If a child does not improve within 24 hours and is not free of fever within three days after receiving treatment, he or she should be taken back to the clinic for evaluation.
- High fevers should also be treated with aspirin, sponge baths and extra fluids. Aspirin dosage depends on the child's age.
- When pregnant, a woman should visit a prenatal clinic immediately and begin taking the recommended prophylactic treatment.

The participants should be reminded that the amount and types of information that they will want or need to convey to community people will depend on the community's knowledge, attitudes and practices regarding malaria, as determined by having conducted a RAP Survey prior to developing a health education project.

Step 3 (60 min)

Developing a Health Education Activity from a RAP Survey

Tell the participants that you just analyzed the results from a RAP survey on malaria (Trainer Attachment 38B RAP Household Questionnaire on Malaria). Post and discuss the results. Form the participants into small groups, based on the survey results and the information they have been given on how and when to treat malaria, ask participants to develop a health education activity (e.g., health message, mini-campaign, poster, story, counseling session). The activity

should address an important gap in what the people in the community know about malaria, (e.g., its effects; how they get it; how they know someone has it; how they treat it; if they go to the clinic for treatment; if they give special foods or use certain types of medication) and in the beliefs or attitudes they hold concerning the disease.

Tell them that they have one hour to develop a short (5-10 minutes) health activity which they will present and critique in the next step.

Trainer Note

It is assumed that participants have completed Session 13 (Survey and Surveillance), and are therefore familiar with what RAP surveys are and why and when you do them. (If this session has not been conducted, you will need to increase the length of time established for this session and incorporate the relevant information now.) Since the participants' major role in malaria control will be to inform the public on how to recognize and where to go to receive treatment for malaria, they must have an understanding of how the disease is viewed by individuals and treated, prior to developing health education activities. Please stress this point.

It is also assumed that participants have worked through many of the sessions in Module 4 (Health Education), and will be able to incorporate skills and knowledge developed in Module 4 when designing and critiquing health education activities in this step. You may view this and the following steps as a posttest of skills and knowledge.

Step 4 (35 min)

Presenting the Health Education Activity

Ask for a group to volunteer to be the first to present. After each group has finished its presentation, spend a few minutes critiquing the activity following the format presented in Session 27, Handout 27C (Evaluation of Practice Session).

Questions to discuss during the critique:

- What was the objective?
- Did the objective relate to changing or reinforcing the knowledge, attitudes or beliefs of the community (as determined through a RAP survey) concerning recognition, treatment and/or control of malaria?
- When designing their activities, did the participants follow the Guidelines for Planning a Health Education Session as described in Session 27? What steps were skipped? Why?
- Was the information technically correct and presented in a way that would help the community understand the signs and symptoms and correct treatment of the disease?

Step 5 (10 min)

Summarization

Ask the group to summarize what they have learned about malaria in general as well as the epidemiology of the disease in the host country. Have them discuss the importance of understanding the impact certain cultural practices may have on this disease and what may be their role in combatting this disease.

Session 38, Handout 38A: Background information on malaria

Disease Transmission

Malaria in humans is normally transmitted by the bite of a female *Anopheles* mosquito that is infected with one of four species of the genus *Plasmodium* (*P. falciparum*, *P. malariae*, *P. ovale*, or *P. vivax*). As the mosquito feeds from the human bloodstream, it releases malaria sporozoites, which enter liver cells (exoerythrocytic stage). After the parasite matures, the liver cell ruptures and releases numerous merozoites. These invade red blood cells (RBCs), starting the erythrocytic stage of an infection. Within the RBCs the parasites mature, become schizonts, and divide again into merozoites. Finally, the infected RBCs rupture, and merozoites repeat the cycle by invading other RBCs. The release of merozoites from erythrocytes initiates the chills and fever of a typical malaria attack (convulsion).

Clinical Picture

Malaria is characterized by fever, sweats, chills, headache, body pain and in severe cases unconsciousness and death. In infants the presenting signs of malaria can be subtle and quite variable and may include poor appetite, restlessness and lethargy.

Geographic Distribution

In Asia the known range is from West Iran and Assam to Burma. In the Americas the range and distribution covers most of tropical South America east of the Andes, both the Caribbean and Pacific sides of Colombia and Panama. In Africa it is mainly located in the Sub-Saharan countries.

Age Groups

Although persons of all ages can get Malaria, two groups are at special risk of becoming severely ill and dying: children under five years of age and pregnant women.

Control Measures

For most countries, eradication of Malaria in the near future is unlikely because of the lack of resources, including health infrastructure and completely effective intervention mechanisms. Limited health budgets restrict the scope of malaria control activities. Most malaria control programs have the goal of reducing deaths caused by malaria. The use of anti-malarial drugs, especially chloroquine, to treat all fever cases, is expected to reduce malaria-caused deaths when given to a sick individual promptly. The use of chloroquine for treatment of fever should be promoted especially for the two groups in the population at highest risk of death due to malaria—pregnant women and children under five.

Because the *P. falciparum* malaria parasite is becoming increasingly resistant to chloroquine in some areas of East Africa, each country needs to monitor the sensitivity of local strains to chloroquine. A method for doing this is well developed and available through national health authorities.

Anti-malarial Drugs

Anti-malarial drugs can safely and effectively reduce and/or eliminate malaria parasites in a person's blood as well as be used to prevent the disease. Even in areas where chloroquine resistance exists, chloroquine will remain an important therapy because it may be effective for many of the local infections and it is safe and inexpensive.

Two measures recommended to reduce the effects of malaria on the health of pregnant women and children under five are:

Presumptive Treatment: Treatment is called "presumptive" because, without examining a blood smear to confirm the presence of parasites, it is presumed that the fever is caused by malaria and that the child will respond to treatment with chloroquine. Chloroquine is given to children who have fever and/or other signs and symptoms of malaria. The amount of chloroquine that is given depends on the weight (or age) of the child and if the country is in an area with suspected resistance. The treatment schedule followed for presumptive treatment should be that which is used in the country or as described in Handout 38B.

Drug Prophylaxis: Prophylaxis means preventing infection of illness. Severe malaria in pregnant women can result in abortion. A pregnant woman who takes chloroquine or another malaria prophylactic at appropriate intervals should be protected from malaria. It is recommended to give a pregnant woman three 100 milligrams (mg) chloroquine base tablets (300 ma) per week (until 2 months after delivery) to prevent malaria from harming the mother and her developing baby. She should not develop symptoms even if she is bitten by an infected mosquito.

It should be noted that sometimes a pregnant woman's first contact with a health facility may be because she has an episode of fever. In such a case, the woman should first receive presumptive treatment for malaria over three days and then continue with drug prophylaxis. The presumptive schedule to follow for pregnant women is given in Handout 38B.

Mosquito Control

Anopheles mosquitoes (larvae and pupae) are the vector (carriers) of malaria. The pre-adult (larvae and pupae) development occurs in water. Water sources ranging from standing rain water to lakes and rivers are used as breeding sites by different species of Anopheles. The number of developing mosquitoes may be reduced by killing larvae in breeding sites. This can be done by draining or filling stagnant water collections with earth. It can also be done with periodic application of petroleum-based sprays or insecticides to stagnant water breeding places. The adults, or flying stages of the mosquito, often rest on the walls of houses. To kill adult mosquitoes, insecticides can be sprayed on the inside walls of houses at regular intervals. Pesticides can be sprayed in the air as "mists" or "fogs" to kill flying adult mosquitoes. The widespread use of insecticides to control malaria has limitations, however. Insecticides are toxic and expensive, and the costs continue to increase.

Individual Protection

People can protect themselves from mosquito bites by screening the windows of their houses or sleeping rooms, by using mosquito netting around their beds, by applying mosquito repellents to their bodies and clothes and by helping to recognize and eliminate breeding locations in their communities. While such anti-mosquito measures will reduce the risk of malaria transmission, they may be too expensive for wide application in many countries.

(Adapted from: CDC/CCCD Draft Training Manual: Target Diseases. CDC MMWR Prevention of Malaria in Travelers, 1982. And Benenses, A., Control of Communicable Diseases in Man)

Session 38, Handout 38B: Treatment schedule for malaria

The following pages give the recommended schedule for the presumptive and prophylactic treatment of malaria in areas that are and are not chloroquine resistant areas. This sheet is provided purely for informational purposes and Volunteers should not prescribe treatment. It should also be noted that these are recommended schedules, and they may differ from Host Country policies, so you must remember to find out and follow host country policies.

SINGLE DOSE PRESUMPTIVE TREATMENT OF MALARIA WITH CHLOROQUINE BY PATIENT'S AGE AND WEIGHT

100 MG BASE/TABLET DOSE TABLE

AGE GROUP	WEIGHT RANGE (KGM)	NUMBER OF TABLETS*	RANGE OF MG BASE PER KGM
Under 6 months	3.4-7.4	3/4	10-22
6-11 months	7.5-9.9	1	10-13
1-3 years	10.0-14.4	1 1/2	10-15
4-6 years	14.5-18.4	2	11-14
7-11 years	18.5-34.9	3 1/2	10-19
12-15 years	35.0-59.9	6	10-17
16 years and older	60.0 and over	6	Varies

*Chloroquine is sometimes available as a syrup. The syrup usually contains 50 mg base of chloroquine per 5 ml (about 1 teaspoonful). Ten to 20 mg per kg of body weight is a safe range for chloroquine.

If a child has not improved within 24 hours and is not free of fever within three days after receiving chloroquine, he or she should be brought back to the clinic for reevaluation.

CHLOROQUINE RESISTANT AREAS: PRESUMPTIVE TREATMENT OF MALARIA WITH CHLOROQUINE BY PATIENT'S AGE AND WEIGHT

100 MG BASE/TABLET DOSE TABLE

Age group	Weight range (KGM)	DAY 1 Number of tablets	DAY 2 Number of tablets	DAY 3 Number of tablets	Total tablets
Under 6 months	3.4-7.4	3/4	3/4	1/4	1 3/4
6-11 months	7.5-9.9	1	1	1/2	2 1/2
1-3 years	10.0-14.4	1 1/2	1 1/2	1/2	3 1/2
4-6 years	14.5-18.4	2	2	1	5
7-11 years	18.5-34.9	3 1/2	3 1/2	1 1/2	8 1/2
12-15 years	35.0-59.9	6	6	3	15
16 years and older	60.0 and over	6	6	3	15

PROPHYLACTIC TREATMENT FOR PREGNANT WOMEN

Age Group	Tablets per week	Number of weeks
pregnant	3 (100 mg base tablet)	From beginning of women pregnancy to 1-2 months after delivery of child

Points to remember and include when discussing the treatment of malaria are:

When discussing presumptive treatment:

- Determine whether or not a child has a fever or has had it recently.
- Look for other signs and symptoms of malaria.
- Give the appropriate amount of chloroquine for the child's weight or age.
- Treat high fevers also with aspirin, sponge baths, (cold water soaked towels placed on the body) and extra fluids given by mouth.
- Keep records of a) treated children and b) chloroquine in stock on tally sheets.
- Start ORT promptly in children with diarrhea, a condition which may complicate a malaria attack.
- Refer the patient to a reference medical center if the response to treatment is not satisfactory.
- Find out cultural practice and determine what you can utilize such as burning incense.

- Incorporate what the villagers can do such as making mosquito nets, cleaning up stagnant ponds and other water collection sites, making screens for windows.
- Determine availability of drug at the local level.
- Incorporate health education methods that encourage villagers to obtain treatment at the first signs of a fever in their young children.

When discussing prophylactic treatment:

- Explain that prophylaxis means preventing infection or illness.
- Emphasize the high risk to pregnant women with malaria of abortion, delivering a still birth, or low birth weight children.
- Continuation of treatment for two months following delivery of baby to assure that the mother is still protected against malaria during a critical time for the baby.
- Inform the mother of its safety.
- Start treatment at the earliest sign of pregnancy.
- Treat pregnant women with a fever who are not taking chloroquine "presumptively" (that is give 6 tablets of chloroquine 100 mg base in the clinic; then 300 mg each day for the next 2 days). One week later after the last treatment dose she should be put on prophylaxis (that is 3 tablets of 100 mgm base per week).

(From: CDC/CCCD Draft Training Materials, Delivery of Services: Malaria, pp. 8-9).

Session 38, Trainer Attachment 38A: Revised recommendation for preventing malaria in travelers to areas with chloroquine-resistant plasmodium falciparum

CENTERS FOR DISEASE CONTROL
MMWR
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Revised Recommendations for Preventing Malaria in Travelers to Areas with Chloroquine-Resistant *Plasmodium falciparum*

Since 1982, CDC has recommended the combined use of chloroquine and Fansidar(r) (pyrimethamine-sulfadoxine) as the primary chemoprophylactic regimen for travelers to areas with transmission of chloroquine-resistant *Plasmodium falciparum* (CRPF). Based on preliminary reports of serious adverse cutaneous reactions associated with the use of Fansidar(r), in January 1985, CDC issued interim guidelines that limited areas for which the prophylactic use of the drug was recommended (1). Since then, additional information that has been used to formulate revised recommendations for travelers to specific areas with CRPF (Table 1) has become available. These recommendations, presented below, differ significantly from those previously issued (2,31).

Since Fansidar(r) became available in the United States in 1982, 20 cases of severe cutaneous reactions (erythema multiforme, Stevens-Johnson syndrome, and toxic epidermal necrolysis) have been documented among American travelers using Fansidar(r); 19 of these reactions occurred among persons simultaneously using chloroquine. Six of these reactions were fatal. Based on IMS America Ltd(r) data, the U.S. Food and Drug Administration (FDA) estimates that, for the United States, between 109,000 and 156,000 persons have been exposed to the drug since 1982. These data indicate that the incidence of fatal cutaneous reactions associated with the prophylactic use of Fansidar(r) among American travelers ranges from 1/18,000 to 1/26,000 users.

* A private firm that conducts comprehensive marketing surveys of pharmaceutical products

These reactions have been associated only with multiple (two to five) doses of Fansidar(r) when used as weekly prophylaxis, and none of these serious reactions have been associated with single-dose Fansidar(r) therapy as used in treating malaria. In addition to these cases of erythema multiforme, Stevens-Johnson syndrome, and toxic epidermal necrolysis, other adverse reactions associated with Fansidar(r) use have also been reported to CDC and FDA. These include serum sickness-type reactions, urticaria, exfoliative dermatitis, and hepatitis.

Because of the risk of these adverse reactions, it is no longer recommended that all travelers to areas with CRPF use Fansidar(r) combined with chloroquine for chemoprophylaxis. The following recommendations have been formulated with the assistance of an ad hoc panel of expert consultants convened at CDC in February 1985. They are based on the estimated risk of acquiring a *P. falciparum* infection in various geographic areas and on CDC malaria surveillance data and travel industry data on the number of Americans who travel to these areas each year. Of necessity, these revised recommendations place increased emphasis on individualized recommendations for travelers and increased responsibility on individual travelers and their physicians.

GENERAL ADVICE FOR TRAVELERS TO MALARIA-ENDEMIC AREAS

Travelers must be informed that, regardless of the malaria prophylactic regimen employed; it is still possible to contract malaria. The symptoms of malaria, such as fever with chills and headache, demand medical attention *as soon as possible* and should not be presumptively ascribed by either the physician or traveler to a "flu-like" illness. Malaria symptoms can develop as early as 8 days after initial exposure in a malaria-endemic area and can appear months after

departure from a malarious area, even after chemoprophylaxis is discontinued. It is important for travelers to understand that malaria can be effectively treated early in the course of the disease but that delays before the institution of appropriate therapy can have serious or even fatal consequences.

PERSONAL PROTECTION MEASURES

Because of the nocturnal feeding habits of Anopheles mosquitoes, malaria transmission occurs primarily between dusk and dawn. Travelers must be advised of the importance of measures to reduce contact with mosquitoes during those hours. Such measures include remaining in well-screened areas, using mosquito nets, and wearing clothes that cover most of the body.

Additionally, travelers should be advised to purchase insect repellent before travel to use on any exposed areas of skin. The most effective repellent is N,N diethylmetatoluamide (deet), an ingredient in many commercially available insect repellents. Travelers may also be advised to purchase a pyrethrum-containing flying insect spray to use in living and sleeping areas during evening and nighttime hours.

AFRICA †

Angola
Burundi
Central African Republic
Comoros
Gabon
Kenya
Madagascar
Malawi
Mozambique
Namibia
Rwanda
Sudan (northern provinces)
Tanzania
Uganda
Zaire (northeastern)
Zambia (northeastern)

SOUTH AMERICA

Bolivia
Brazil
Colombia
Ecuador ‡
French Guiana
Guyana
Panama (east of the Canal Zone, including the San Blas Islands)
Peru (northern provinces)
Surinam

ASIA

Burma
China (Hainan Island and southern provinces)
Indonesia §
Kampuchea †
Laos ¶
Malaysia
Philippines
(Luzon, Basilan
Mindoro, Palawan, and
Mindanao Islands,
Sulu Archipelago)

Thailand
Vietnam

OCEANIA †

Papua New Guinea
Solomon Islands
Vanuatu

INDIAN SUBCONTINENT †

Bangladesh (north and east)
India
Pakistan (Rawalpindi)

*There is no malaria risk in urban areas unless otherwise indicated. This table should be used in conjunction with the text in determining appropriate prophylaxis.

† Malaria risk exists in most urban areas

§ Malaria risk exists in urban areas of Timor and Kalimantan provinces. Irian Jaya should be considered as Oceania.

¶ Malaria risk exists in all urban areas except Vientiane

** Malaria risk exists in urban areas of interior Amazon River region

‡ Malaria risk exists in urban areas of Esmeraldas, Manabi, El Oro, and Guayas provinces (including city of Guayaquil)

RATIONALE FOR USING CHLOROQUINE IN AREAS WITH CRPF

Because of its record of safety and efficacy, chloroquine remains the primary prophylactic drug of choice for travelers to all malarious areas, including areas with CRPF. In all areas with CRPF, there is malaria caused by one or more other species of *Plasmodium* (*P. vivax*, *P. ovate*, *P. malariae*) that remain sensitive to chloroquine. In addition, chloroquine-sensitive *P. falciparum* may coexist with chloroquine-resistant parasites within a geographic area.

TRAVELERS TO AREAS IN AFRICA WITH CRPF

In general, travelers to malaria-endemic Africa are at considerable risk of exposure to *P. falciparum* because of the high level of malaria transmission in many areas. Of 358 reports to CDC of *P. falciparum* infections imported into the United States by American civilian travelers during 1982-1984, 256 (72%) were acquired in Africa. Ninety of these were fatal (three fatal cases were acquired in areas of east Africa with CRPF). An estimated 90,000 Americans travel to sub-Saharan Africa each year. Except for the city of Nairobi, where the level of malaria transmission is very low, there is considerable risk of acquiring CRPF in areas in east Africa frequented by tourists.

Short-Term Travel. For short-term travelers (3 weeks or less) to areas of Africa with CRPF, the weekly use of chloroquine alone is recommended. In addition, these travelers (except those with histories of sulfonamide or pyrimethamine intolerances) should be given a single treatment dose of Fansidar(r) (Table 2) to be kept in their possession during travel and should be advised to take the Fansidar(r) promptly in the event of a febrile illness during or after their travel *when professional medical care is not readily available*. It must be emphasized to travelers that such presumptive self-treatment of a possible malarial infection is only a temporary measure and that professional medical follow-up care as soon as possible is imperative. They should also be advised to continue weekly chloroquine prophylaxis after presumptive treatment with Fansidar(r).

Longer-Term Travel. Because persons with prolonged exposure in areas of CRPF transmission are at higher risk of acquiring malaria, the use of combined weekly prophylaxis with chloroquine and Fansidar(r) (Table 2) can be considered. Physicians who advise such travelers and expatriate residents must take into consideration individual living conditions in Africa, the availability of local medical care, and when possible, local malaria transmission patterns. The suitability of the regimen described above for short-term travelers, and alternatives discussed below, should also be assessed. The potential benefit of the routine prophylactic use of Fansidar(r) for these travelers must be weighed against the risk of a possible serious or fatal adverse reaction. If weekly use of Fansidar(r) is prescribed, the traveler should be advised to discontinue it immediately in the event of a possible ill effect, especially if any mucocutaneous signs or symptoms, such as pruritus, erythema, rash, orogenital lesions, or pharyngitis, develop.

Alternatives. Alternatives to these regimens have shortcomings either because of less than conclusive efficacy data and/or unavailability in the United States. Amodiaquine (Camoquin(r), Flavoquine(r)), a 4-aminoquinoline compound related to chloroquine, has been shown to be more effective than chloroquine in treating CRPF infections and may afford more protection than chloroquine when used as weekly prophylaxis (14). Amodiaquine, like chloroquine, is generally well tolerated. Although licensed, this drug is not marketed in the United States but is widely available in Africa. Its use, therefore, is probably more practicable in long-term visitors and persons who will reside in areas of Africa with CRPF (Table 2). If amodiaquine is prescribed for such travelers, they should also have in their possession a treatment dose of Fansidar(r) to be taken under the same conditions described previously for the short-term traveler.

TABLE 2. Drugs used in the prophylaxis and presumptive treatment of malaria acquired in areas with CRPF

Drug	Routine prophylaxis	Presumptive treatment
------	---------------------	-----------------------

	Adult dose	Pediatric dose	Adult dose	Pediatric dose
Chloroquine phosphate (Aralen ^(r))	300 mg base (500 mg salt) orally, once/week	5 mg/kg base (8.3 mg/kg salt) orally once/week up to maximum adult dose of 300 mg base	Chloroquine is not recommended for the presumptive treatment of malaria acquired in areas of known chloroquine resistance.	
Amodiaquine (Carnoquin ^(r) , Flavoquine ^(r) *)	400 mg base (520 mg salt) orally, once/week	7 mg/kg base (9 mg/kg salt) orally once/week up to maximum adult dose of 400 mg base	Amodiaquine is not recommended for the presumptive treatment of malaria acquired in areas of known chloroquine resistance.	
Pyrimethamine-sulfadoxine (Fansidar ^(r)) ⁺	1 tablet (25 mg pyrimethamine and 500 mg sulfadoxine) orally once/week	2-11 mos: 1/8 tab/wk 1-3 yrs: 1/4 tab/wk 4-8 yrs: 1/2 tab/wk 9-14 yrs: 1/4 tab/wk 14 yrs: 1 tab/wk	3 tablets (75 mg pyrimethamine and 1500 mg sulfadoxine), orally as a single dose	2-11 mos: 1/4 tab 1-3 yrs: 1/2 tab 4-8 yrs 1 tab 9-14 yrs: 2 tabs > 14 yrs: 3 tabs as a single dose
Doxycycline [§]	100 mg orally once/day	> 8 years of age: 2 mg/kg of body weight. Orally/day up to adult dose of 100 mg/day	Tetracyclines are not recommended for the presumptive treatment of malaria	

* Unavailable in the United States but widely available overseas

⁺ The use of Fansidar(r) is contraindicated in persons with histories of sulfonamide or pyrimethamine intolerance in pregnancy at term and in infants under 2 months of age. Physicians who prescribe the drug to be used as presumptive treatment in the event of a febrile illness when professional medical care is not readily available should ensure that such prescriptions are clearly labeled with instructions to be followed in the event of a febrile illness. It used as weakly prophylaxis travelers should be advised to discontinue the use of the drug immediately in the event of a possible adverse effect especially if any mucocutaneous signs or symptoms develop.

[§] The use of doxycycline is contraindicated in pregnancy and in children under 8 Years of age. FDA considers the mg of tetracyclines as antimalarials to be investigational. Physicians who

prescribe doxycycline as malaria chemoprophylaxis should advise their patients to limit direct exposure to the sun to minimize the possibility of a photosensitivity reaction.

Another alternative for travelers to areas of Africa with CRPF is the use of daily doxycycline *alone* (Table 2). This drug could be considered for use in short-term travelers, such as those with previous histories of sulfonamide intolerance. Limited studies conducted in the early 1970s indicated that tetracyclines, when used alone, were effective against *P. falciparum* (5,6). Tetracyclines are contraindicated in pregnancy and in children under 8 years of age. Persons who use doxycycline as prophylaxis must be made aware of the possible side effects associated with tetracyclines, of particular concern in travelers to tropical climates is the possibility of photosensitivity, usually manifested as an exaggerated sunburn reaction. The risk of such a reaction can be minimized by avoiding prolonged, direct exposure to the sun.

The use of proguanil (Paludrine(r)) alone or in combination with other antimalarials has been suggested for travelers to east Africa (7) Because adequately controlled efficacy trials have yet to be reported, the use of this drug cannot be recommended.

For travelers to Africa, the importance of using the general protection measures outlined previously and the absolute necessity for prompt recognition and treatment of possible malaria cannot be overemphasized.

TRAVELERS TO AREAS IN CHINA AND SOUTHEAST ASIA WITH CRPF

An estimated 500,000 Americans travel to China and Southeast Asia each year. In contrast to travelers to Africa, they are at very low risk of acquiring malaria. Of the 358 reported *P. falciparum* infections among American civilians during 1982-1984, only 11 (3%) were acquired in these areas; none were fatal. Malaria transmission in China and Southeast Asia is largely confined to rural areas that are not visited by most travelers; furthermore, travelers who do visit rural areas usually do so only during daytime hours when there is minimal risk of exposure.

Therefore, malaria chemoprophylaxis is not recommended for travelers who will visit only urban centers of Asia or who will have only daytime exposure in rural areas. This includes most travelers to China, Indonesia, Malaysia, the Philippines, and Thailand. Such travelers should, however, be advised to observe general precautions to minimize mosquito contact as outlined previously and to seek prompt medical attention in the event of a febrile illness either during or after their trip.

Travelers who veer from the usual tourist routes of these areas and who will have outdoor exposure in rural, malarious areas during evening and nighttime hours should be given consideration similar to travelers to CRPF areas of Africa as previously described. Special consideration should be given to travelers who will have substantial exposure in rural areas of Thailand, where widespread resistance to both chloroquine and Fansidar(r) has been reported. Regimens for these travelers should be made in consultation with local or state health departments or CDC.

TRAVELERS TO AREAS OF SOUTH AMERICA WITH CRPF

It is estimated that over 400,000 Americans visit South America each year. Travelers to malaria-endemic regions of South America are at minimal risk of exposure to *Plasmodium*. Only seven (2%) of the 358 reported *P. falciparum* infections among American civilians were acquired in

South America, one case was fatal. Malaria transmission in South America occurs primarily in rural areas, except for certain urban areas of the interior Amazon River basin and urban coastal areas of Ecuador.

Therefore, travelers to areas of South-America with CRPF should be advised in the use of chemoprophylaxis regimens as previously described for China and Southeast Asia.

TRAVELERS TO THE INDIAN SUBCONTINENT

Nineteen (5%) of the 358 reported *P. falciparum* infections among American civilians were acquired in India; none were fatal. Approximately 100,000 American residents visit the Indian subcontinent each year. Since transmission occurs in both urban and rural areas of Bangladesh, India, and Pakistan, travelers to these areas must be considered at risk of acquiring malaria. While there have been reports of chloroquine resistance from multiple areas of these countries, it has generally been low-level resistance in areas not frequented by tourists.

Chloroquine prophylaxis alone is, therefore, recommended for travelers to the Indian subcontinent (Table 2). These travelers should be advised to observe general precautions to minimize mosquito contact as outlined previously and to seek prompt medical attention in the event of a febrile illness either during or after their trip.

TRAVELERS TO OCEANIA

Malaria transmission in many areas of Papua New Guinea, Irian Jaya, the Solomon Islands, and Vanuatu is intense and in some areas may approximate that found in malarious areas of Africa. Travelers to these areas should, therefore, be advised in the use of the chemoprophylaxis regimens previously described for travelers to CRPF areas of Africa.

Reported by Div of Quarantine, Center for Prevention Svcs, Malaria Br, Div of Parasitic Diseases, Center for Infectious Diseases, CDC; Div of Epidemiology, Office of Epidemiology and Biometry, US Food and Drug Administration.

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5. Rieckmann KH, Willerson WD Jr, Carson PE, Frischer H. Effects of tetracyclines against drug-resistant falciparum malaria. Proceedings of the Helminthological Society of Washington 1972;39:339-47.
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Session 38, Trainer Attachment 38B: KAP household questionnaire on malaria

The following is an example of KAP Questionnaire on Malaria. Present this or one used in the host country when conducting Step 3. Remember if the session on Survey and Surveillance and the Impact of Culture on Diarrhea have not been conducted so far in this training, you will need to spend some time in introducing a RAP Questionnaire and the basic principals of planning and conducting surveys.

Prior to this session use this form or an adaptation of it and collect KAP data from host country nationals that will help you compile some valid quantitative data on these questions. These results should then be compiled, presented and used by the participants when developing their health activity.

KAP HOUSEHOLD QUESTIONNAIRE ON MALARIA

1. Does your child currently have a fever?

Yes _____ No _____

If Yes, for how long has he or she had a fever Number of days _____ (99 = Don't know)

2 What did or are you doing to treat the child's fever or malaria? (open ended question)

3. Who treats or treated this ill child? (answer to be guided by the interviewer) A Health _____ agent Someone else _____ (if checked go to question number 6)

4. On what day, during the course of the fever or malaria, did you first take this child to the health center? _____ day (can't know = 99)

5. Did this child receive any medication to prevent his or her fever or malaria before he or she was seen by the health center (discuss and verify response)

Yes _____ (go to question 7) No _____ Don't remember _____

6. Did the child receive medication to treat the fever or malaria (discuss and verify)

Yes _____ No _____ (stop interview) Don't remember _____ (stop interview)

7. On what day of illness did the child begin taking, the treatment/ medication. _____ day (don't remember = 99)

8. What medication was given to treat the child (record all responses)

Nivaquine (chloroquine) _____ Flavoquine _____

Camoquin _____ Quinamax _____

Fansidar _____ Aspirin _____ Other _____

9. Total number of days this medication was given during the course of the illness.

_____ times (don't remember = 99)

10. How many days did the child take the medication
_____ days (don't remember = 99)

11. What is the total number of treatment doses given in a 24 hour period (discuss and verify)
_____ dosage (dosage unknown = 99)

tablets _____ tablespoonsfuls _____ teaspoonsful _____

injections _____

(Adapted From: C.C.C.D. KAP Survey conducted in People Republic of The Congo)

Session 39: The vicious cycles of diarrhea

Session 39, Handout 39A: Common causes of diarrhea

Session 39, Trainer Attachment 39A: The importance of health and, more specifically, diarrheal disease for the economic and social development of the developing countries

Session 39, Trainer Attachment 39B: Principal health considerations for a public education campaign on prevention and treatment of infant diarrhea

Session 39, Trainer Attachment 39C: A story about diarrhea

Session 39, Trainer Attachment 39D: Suggestions for using the picture story

TOTAL TIME: 2 hours

OVERVIEW

Diarrheal diseases are serious illnesses, widespread in developing countries. In virtually all developing countries diarrheal diseases are among the five leading causes of death in children under five and, in many countries the leading cause of death in children. In this and in the next four sessions, participants will gain the following knowledge which they need to design effective health education programs on prevention and treatment of diarrhea: 1) causes of the most prevalent types of diarrhea in the host country; 2) methods to assess and treat various levels of severity of dehydration; and, 3) cultural knowledge, attitudes and practices that affect the incidence of diarrhea and how it is treated.

In this session, participants learn some of the causes of diarrhea, how it is transmitted and types of interventions that can be used to prevent and treat dehydration.

OBJECTIVES

- To identify environmental, social and cultural factors that affect the occurrence of diarrheal diseases in the Host Country. (Steps 1, 2)
- To identify ways to intervene in the diarrhea cycle. (Step 3)

RESOURCES

- Control of Communicable Diseases in Man. pp.: 78-82; 109-114; 147-151.
- Oral Rehydration Therapy and The Control of Diarrheal Diseases (Peace Corps Training Manual)
- Water Treatment and Sanitation: Simple Methods for Treatment of Rural Areas. (ICE)

- Rural Water/Sanitation Projects: Water for the World

Handout:

- 39A Common Causes of Diarrhea

Trainer Attachments:

- 39A The Importance Of Health And, More Specifically, Diarrheal Disease For The Economic And Social Development Of The Developing Countries.

- 39B Principal Health Considerations for a Public Education Campaign on Prevention and Treatment of Infant Diarrhea.

- 39C A Story about Diarrhea.

- 39D Suggestions for Using Picture Stories.

MATERIALS

Markers, newsprint, visual aids on prevention control of diarrhea

PROCEDURE

Trainer Note

This session builds upon the information and knowledge that participants have acquired, working through the module on Primary Health Care, or their experience in the field.

In advance of this session, prepare a lecturette or invite a guest speaker to give one on the global impact of diarrhea, using Trainer Attachment 39A, (The Importance Of Health And, More Specifically, Diarrheal Disease For The Economic And Social Development Of The Developing Countries). Include information on the extent to which diarrhea is a problem in the host country and on the major health considerations facing the health education organization regarding prevention and treatment of infant diarrhea. Some of this information is found in Trainer Attachment 39B (Principal Health Considerations for a Public Educator Campaign on Prevention and Treatment of Infant Diarrhea) or obtainable through discussion with MOH personnel and others involved in Diarrheal Disease Control programs.

Also in preparation for Step 2 of this session, adapt Trainer Attachment 39C (A Story about Diarrhea) to fit local conditions and people. If time allows, adapt the pictures, using the tracing techniques described in Session 25 (Selecting and Using Visual Aids).

Step 1 (40 min.)

Diarrheal Disease Overview

Begin this session by presenting or having a guest speaker present a 25-30 minute overview of the causes of diarrhea and its impact on the social and economic development of developing countries in general and the host country in particular. The lecture should focus on those practices and behaviours of the population at risk which contribute to transmission of diarrhea and on how it is traditionally treated. At the end of the presentation, distribute Handout 39A (Common Causes of Diarrhea) and tell participants that this is a reference that might prove useful as a guide to identification and first line treatment recommended for diarrhea. Conclude

this Step by giving the participants a brief synopsis, as stated in the overview, of what they will learn in this and the next four sessions on diarrheal diseases and ORT.

Trainer Note

The lecture is meant to give the participants a sense of where their work in ORT fits into similar work locally and worldwide, through Peace Corps programs and other organizations, as well as an overview of the transmission, control and treatment of diarrhea. Some main points to include and discuss are:

- number of cases of illness and death resulting from diarrhea and dehydration
- local names and methods of treatment of diarrhea
- modes of transmission of disease with particular stress on the fecal-oral (hand to mouth) route
- the fact that most of these deaths are preventable through oral rehydration therapy in the short term, and sanitation and hygiene in the long term
- prevention and control of diarrhea is an important part of primary health care.

Step 2 (40 min)

A Story About Diarrhea

Tell the story that you adapted from Trainer Attachment 39C (A Story About Diarrhea), using the pictures, and following the suggestions in Trainer Attachment 39D (Suggestions for Using the Picture Story).

Ask participants to discuss: Why did Alioune die?... and list the causes that they suggest.

Then ask: Could Alioune's death have been prevented? How?... and list the interventions they suggest.

Point to the circle of pictures that you made when you told the diarrhea story and ask participants to identify where in the circle they can intervene when working in the community. As they offer suggestions, post the appropriate intervention pictures beside the pictures in the circle. (See Trainer Attachment 39D for an illustration of how to do this).

Trainer Note

During the discussion make sure participants give cultural, economic and social factors affecting the death of Alioune, as well as environmental (sanitation) and biological (disease agents) factors. Be sure participants also discuss which interventions they can actually do in their work in the community.

This exercise is intended to introduce and give an overview of the notion of the cyclical nature of diarrhea and its effect on a society's well-being.

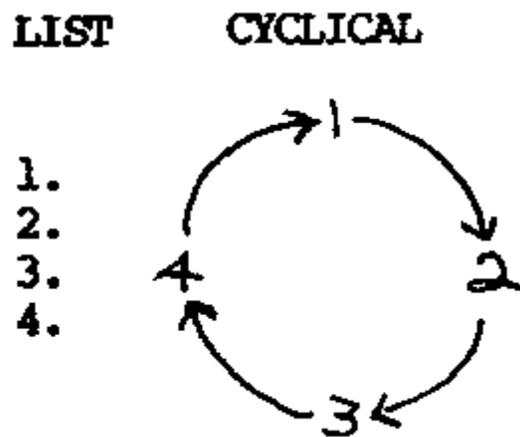
Although some participants may already think of diarrhea as both a cause and consequence of problems in development, many may only have a sense of diarrhea as a consequence of other

problems, not as a causal factor itself. To help them understand the full magnitude of the problem, participants should list things they think cause diarrhea. By working with their list and the pictures you presented during the story, they should begin to see how their "list" of causes of diarrhea can also be viewed as being caused by diarrhea, that is, these problems are cyclical rather than linear as graphically shown below:

LIST

- 1.
- 2.
- 3.
- 4.

Cyclical



Step 3 (20 min)

Discussing Different Types of Interventions

Ask participants to look at the interventions that they suggested and divide them into the following categories:

- Interrupting the transmission of the disease, (for example, influencing behavior such as using latrines and clean water).
- Strengthening the body's defenses (such as providing good nutrition).
- Therapy (such as oral rehydration).

Discuss the advantages and disadvantages of these different interventions, particularly in terms of the short-term and long-term results. Also discuss how these interventions are a part of primary health care.

Discuss which interventions are most realistic for Volunteer and Counterpart involvement, given the conditions in which they work.

Conclude the session by referring back to the objectives and training schedule to see where the participants will be developing skills in these areas.

Trainer Note

The main point to be stressed in this discussion is that treatment with ORS or sugar-salt solution is the recommended first line method of handling diarrheal disease.

If more information is needed on methods of preventing and controlling disease via water and sanitation projects, refer to the resources listed on page 1 of this session.

Session 39, Handout 39A: Common causes of diarrhea

This table gives the information that will help to identify, on clinical grounds alone, the most common agents of diarrhoea. It is greatly simplified. For example, some agents produce a variety of clinical features. Only agents of major importance world-wide have been included. In certain areas, at certain times, the picture may be quite different.

Try and find out what the important causes of diarrhoea are in your area.

Caution: There are a number of other conditions associated with diarrhoea such as infections outside the gut (e.g. measles and malaria), malnutrition, food intolerance etc. Remember to look for these and give specific treatment where appropriate.

If readers find this table useful, we may present other information in the same way in future issues of *Diarrhoea Dialogue*. Please send us your comments on this clinician's guide.

Complaint	Associated clinical features		Incubation period	Epidemiological features	Organisms	First line treatment
	Common	Others				
ACUTE WATERY DIARRHOEA	<ul style="list-style-type: none"> • Vomiting • Fever 	<ul style="list-style-type: none"> • Severe dehydration in some 	24-72 hours	<ul style="list-style-type: none"> • Infants and young children • Common world-wide in all socio-economic groups • Peak in colder seasons in temperate climates 	Rotavirus	<ul style="list-style-type: none"> • Rehydration therapy
The stool	<ul style="list-style-type: none"> • Nausea 	<ul style="list-style-type: none"> • Fever 	6-72	<ul style="list-style-type: none"> • Infants and 	Enterotoxigeni	<ul style="list-style-type: none"> • Rehydration

takes the shape of the container	<ul style="list-style-type: none"> • Vomiting • Abdominal pain 	<ul style="list-style-type: none"> • Malaise • Severe dehydration 	hours	<ul style="list-style-type: none"> • young children in developing countries • Travellers diarrhoea in adults 	<i>Escherichia coli</i> (ETEC)	therapy
	<ul style="list-style-type: none"> • Nausea • Vomiting • Fever • Chills • Abdominal pain 	<ul style="list-style-type: none"> • Malaise 	8-36 hours	<ul style="list-style-type: none"> • Children • Common world-wide • Food-borne outbreaks (animal products) • Warmer seasons 	Non-typhoid Salmonellae	<ul style="list-style-type: none"> • Rehydration therapy
	<ul style="list-style-type: none"> • Abdominal pain • Fever • Malaise 	<ul style="list-style-type: none"> • Chills • Blood and pus in the stools 	3-5 days	<ul style="list-style-type: none"> • World-wide distribution • In developed countries may be food-borne (animal products) or transmitted by handling of animals 	<i>Campylobacter</i>	<ul style="list-style-type: none"> • Rehydration therapy • Erythromycin in severe cases
	<ul style="list-style-type: none"> • Vomiting • Abdominal pain 	<ul style="list-style-type: none"> • Severe dehydration • Circulatory collapse, 'shock' 	1-3 days	<ul style="list-style-type: none"> • Children in endemic areas • Adults in newly affected areas • Not found in Latin America 	<i>Vibrio cholerae</i>	<ul style="list-style-type: none"> • Rehydration therapy • Tetracycline
	<ul style="list-style-type: none"> • Nausea • Vomiting 	<ul style="list-style-type: none"> • Fever 	6-72 hours	<ul style="list-style-type: none"> • Nursery outbreaks in developed countries • Uncertain in developing countries 	Enteropathogenic <i>Escherichia coli</i> (EPEC)	<ul style="list-style-type: none"> • Rehydration therapy
DYSENTERY	<ul style="list-style-type: none"> • Fever 	<ul style="list-style-type: none"> • Malaise • Vomiting 	36-72	<ul style="list-style-type: none"> • Children • Poor hygiene 	• Shigellae	<ul style="list-style-type: none"> • Rehydration therapy

The stool is soft and watery with blood and/or pus	Abdominal pain	<ul style="list-style-type: none"> • Urgency to defaecate • Painful spasm on defaecation 	hours	<ul style="list-style-type: none"> • Malnutrition • Institutions • Warmer seasons 		<ul style="list-style-type: none"> • Ampicillin or Trimethoprim-Sulfamethoxazole
PROLONGED DIARRHOEA (OR DYSENTERY)	<ul style="list-style-type: none"> • Abdominal discomfort 		2-6 weeks	<ul style="list-style-type: none"> • All age groups • World-wide distribution 	<i>Entamoeba* histolytica</i>	<ul style="list-style-type: none"> • Metronidazole
For at least 7 days, stools have been of softer consistency (with or without blood or pus)	<ul style="list-style-type: none"> • Abdominal distension • Flatulence 	<ul style="list-style-type: none"> • Anorexia • Nausea • Malabsorption • Frothy stools 	1-3 weeks	<ul style="list-style-type: none"> • Young children • Some travellers • Poor hygiene • World-wide distribution 	<i>Giardia* lamblia</i>	<ul style="list-style-type: none"> • Metronidazole

(From: Diarrhoea Dialogue Issue 7, November 1981. p. 8)

Session 39, Trainer Attachment 39A: The importance of health and, more specifically, diarrheal disease for the economic and social development of the developing countries

MR. A. M. A. MUHITH
 Minister for Finance and Planning
 Government of Bangladesh
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When I was first informed about the invitation to this conference, I thought that my association with the International Center for Diarrheal Disease Research, Bangladesh and its previous incarnation, the Cholera Research Laboratory, must have prompted the sponsors to remember me. I also wondered if they were not trying to recognize the special place of Bangladesh in the development of oral rehydration therapy. I gathered later that I was required to put some lay input into this socio-medical conference. I have been asked to speak on the importance of health, and especially diarrhea, in the social and economic development of the Third World. I am, in deed, greatly honored to be here today and especially for being given the privilege of speaking to this distinguished gathering.

Economic and social development is a composite process: it is a multifaceted program. Lives should not only be saved from premature death, but the quality of life should be good. The development process aims at full utilization of a nation's potential of human and material

resources for living a better life. It seeks to make life a little more comfortable and a little more meaningful.

So you want to provide the people of your nation with some education, good health, two square meals a day, a place to rest with some ease and comfort, and then perhaps some recreation. You get involved in the process of producing more goods and services for ministering to the needs of your citizens. In this process, no single activity is enough. Mere universal education will not do. Simple health for all is not sufficient. Self-sufficiency in the production of food-grains is not the end of it all. Establishment of good housing units alone will not work. All these objectives and more have to be pursued simultaneously. You have to watch out for population growth, lest all the gains are eaten away by new mouths. You have to make sure that there are enough jobs for all, lest there is social instability created by people without income. The development process is, indeed, all-embracing. Even for improvement in health conditions you need expansion of basic education, provision of sufficient food and drinking water, facilities for sports and recreation, and harnessing of science and technology.

The economic and social environment is an important determinant of health conditions and practices and, in its turn, is also dependent on health conditions. The system of disposal of excreta, for example, or dietary habits, income levels of families, supply of good potable water, or availability of the quantum and kinds of food largely influence the incidence of diarrheal diseases. Again, the incidence of diarrhea, in its turn, will have an impact on the capabilities of the labor force in the productive process.

In 1978, health planners and technicians gathering for the International Conference on Primary Health Care in Alma Ata made a clarion call for "Health for All" by 2000 A.D. It was thought that "a level of health that will permit people to lead a socially and economically productive life" should be attained by all communities. The conference also reaffirmed that "health which is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity is a fundamental human right" It further declared that "the existing gross inequality in the health status of the people, particularly between developed and developing countries as well as within countries is politically, socially and economically unacceptable". These lofty ideas were not mere platitudes. The state of human knowledge easily permitted such affirmation or declaration. Since that time, there have been further advances in the capability of man to overcome health problems, as this conference bears testimony. Oral rehydration therapy secured international acceptance about a year after the Alma Ata conference, and it holds out immense possibilities for obliterating diarrheal mortality

What, indeed, is meant by "health for all"? Perhaps it can best be explained with reference to concrete facts. Let us visualize the situation in a specific country, Bangladesh, which represents one of the worst cases in health care. In this country, 140 out of 1,000 children die before the age of five. There are 93 million people, and the crude birth rate (CBR) is about forty-one, while the crude death rate (CDR) is sixteen. Life expect fancy is only forty-seven years. There is a doctor for 10,000 people, a hospital bed for 4,500, and a medical assistant for 130,000 people. We spend a little over \$1.00 per capita per year for health. By the end of the century, if we can bring infant mortality to fifty, the CBR to twenty, and the CDR to ten, we shall consider ourselves successful in our development program. We want at that time one hospital bed per 1,500, one doctor per 3,000, and one medical assistant per 30,000 people. These are not ambitious targets, but they are extremely difficult to achieve. There are difficulties in mobilizing financial

resources, in securing the necessary manpower, and in getting the appropriate organizational and institutional backup.

Where does diarrheal disease fit into this equation of development and health for all? Diarrhea is believed to take a toll each year of about five million lives of children under five in the developing world. Though exact statistics would be difficult to find, analysis of several studies carried out in various parts of the globe suggests that about one-fourth of infant mortality in the developing countries is accounted for by diarrheal diseases. Each year, a child in the Third World has over two episodes of diarrhea, and those who survive suffer from malnutrition and other disabilities. Diarrhea is one of the oldest persisting diseases. Originally flourishing only in the Indian subcontinent, it became a worldwide phenomenon especially after the great Russian epidemic of 1923-32. No other bacteria has caused as much death in the world as cholera in an eighty-year period of the last century.

Today, in the developed world, the infant mortality rate is approximately ten to fifteen out of every thousand. In the developing countries, diarrhea alone takes away twice as many lives. This disparity in living conditions underscores the relationship between development and diarrhea. In Bangladesh, of the 140 children who die out of every born, twenty-five die due to diarrhea and another twenty die due to malnutrition; and malnutrition may be due in some cases to diarrhea. Merely as an agent of death in depriving children of the bliss of life, diarrhea is monstrous in our society. The capacity to work of many adult persons is greatly impaired by diarrheal diseases. But this is a scourge which can be brought under control in a fairly short period of time. Oral rehydration therapy can be an effective control program that will obtain more results than mere elimination of diarrhea. It will help the process of education of people, research in science and technology, adaptation of appropriate technology, and conservation of resources.

It is believed that, in ancient times, oral rehydration was practiced in Bangladesh. But the contact with medical technology of the post-Industrial Revolution put the practice into disuse. When cholera became a world scourge in the early nineteenth century, rehydration therapy gave way to other forms of treatment. Only recently intravenous saline therapy received recognition, and the seeds of the oral rehydration process were sown again. In the late sixties and early seventies, this therapy was widely experimented in Bangladesh and West Bengal of India. The logic of the transformation process was very simple. Since the facilities of intravenous injection cannot be taken to the doorsteps of the victims, an alternative method must be found to provide fluids to the sick body. It seems that we have traversed the full circle. The ancient village practice is coming back, and even the indigenous preparation of the fluid holds out hope. Starting with glucose and saline mixture, we are moving towards "lobon gur", or the broth of salt and raw sugar.

Universalization of oral rehydration therapy still has to cross a lot of hurdles. The various problems associated with its widespread application, however, have a familiar ring. They are identifiable virtually in any development activity:

- The barriers of age-old prejudices and time-honored traditions have to be broken. Presently, fluids and nutritive foods are prohibited during diarrheal episodes. This cultural condition, ingrained by centuries of tradition - at least two centuries, in the case of my country - has to be demolished. Housewives, in particular, have to be persuaded to accept the new treatment. Basic education as well as extension programs are important for this purpose.

ORT must represent cost-effective and appropriate technology. An ORT package still costs eight cents, and six packets are needed per child per year. This represents about half of the per capita expenditure on health in Bangladesh. Cheaper mixtures must be found; broth of cereals, salt, and raw sugar provide an interesting option. Air-tight packets certainly do not represent appropriate technology. But an indigenous mixture, with its positive effects on program popularity, has the associated problem of lack of scientific precision. WHO and UNICEF have mounted a successful program, but they must move forward to find more cost-effective and more appropriate technologies.

ORT is usually administered by the mothers. In communities where most mothers are uneducated and bound by superstition, how do you train them to mix the fluid and administer it in the right doses? The Menoufia program in Egypt and the Bangladesh Rural Advancement program in Bangladesh are bold and imaginative efforts, but will their widespread replication succeed? In many areas, such as Nepal or the Maldives, the supply of potable water will present problems in the home preparation of fluids, even if the skills are successfully disseminated.

ORT can be very successful in preventing death due to acute diarrhea. In most areas of India and Egypt where ORT has been intensively tried, the mortality rate has been reduced by 60% to 80%. In Matlab Thana of Bangladesh, which is an experimental station of ICDDR, B, effectiveness is total. But the maintenance of nutritional level after treatment of the diarrheal condition depends on the availability of adequate diet and on food habits. In that area, any achievement is a matter of more comprehensive planning efforts. Effective action requires larger development programs relating to agricultural production and health education. Success in ORT cannot, alone, remove the debilitating effects of diarrhea on community health.

Finally, service delivery is a moot issue in all health care programs. Planning for the community as well as coverage of the members present formidable problems. But these problems are not unique to diarrheal disease control and can be said to be endemic in the development process as a whole. Planning is essentially a centralized process, but when you plan for vast masses scattered in habitations not neatly linked together, you have the problem of (a) local-level planning on the basis of felt needs and (b) implementation of the plan that calls for mass motivation and participation. Prescriptions have been known for decades, but in the political process of most developing countries they do not work. Devolution of government, local-level planning, and decentralization of the development process are good slogans that strike at the roots of central governmental authority of sovereign nations and, therefore, are relentlessly resisted. A change of heart is direly needed in this respect. I should hasten to add that we seem to be making some successful maneuvers in our country in this effort.

Development means betterment of living conditions and improvement in the quality of life. Good health is basic to both of these goals, and good health, in turn, depends on the betterment of living standards. Diarrhea is a major problem in the developing countries. Its control and elimination are a core concern of the development process. Again, its control and elimination also depend on progress in the development process. Improvements in education, agricultural production, water supply, sanitation, or housing will have salutary effects upon the incidence of diarrhea.

As I was coming to this conference, I was told by one of my staff that the conference itself reflects the failure of the development process. It demonstrates the incompetence of man, despite his awe-inspiring command over science and technology, to eliminate the need for ORT.

Diarrheal disease is not new, and its prevention is not so difficult. We have dedicated a decade to water and sanitation. We have called for "health for all" in two decades. But can these declarations be made good, and can these promises be kept? We must obliterate the disgrace of diarrheal diseases, and for that we have the know-how. We need to apply ORT intensively, and we need to improve upon the technology. But this is only an intermediate stage, for ultimately this therapy should become needless. Improved water supply good sanitation, and adequate food should render diarrheal disease a thing of the past. Economic development cannot permit the demeaning condition of mortality and morbidity due to diarrhea.

In concluding, I would like to compliment the sponsors of the conference for focusing attention on one of the commonest diseases in the developing world that takes the largest toll of human lives. They deserve our congratulations once more for trying to popularize a low-cost and appropriate therapy for this common disease.

Session 39, Trainer Attachment 39B: Principal health considerations for a public education campaign on prevention and treatment of infant diarrhea

MASS MEDIA & HEALTH PRACTICES

PROJECT IMPLEMENTATION

Academy for Educational Development, Inc.

DOCUMENT #8

Sponsored by the Office of Health and Office of Education Development Support Bureau
UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT

PRINCIPAL HEALTH CONSIDERATIONS FOR A PUBLIC EDUCATION CAMPAIGN ON PREVENTION AND TREATMENT OF INFANT DIARRHEA

BACKGROUND

This document is an attempt to review the major health considerations facing the organization of a public education campaign on the prevention and treatment of infant diarrhea. It is not a comprehensive medical description of infant diarrhea, nor a thorough review of the diarrheal control literature. It looks at infant diarrhea from the perspective of a community educator and asks, "What are the important behaviors which must be understood before a successful educational campaign in this area can be affected?" The primary purpose of this document is to assist the directors of the Mass Media and Health Practices Project design the pre-program developmental investigation phase of project activity. We hope that it will also prove valuable to planners of similar projects.

A. The Health Problem Acute Infant Diarrhea

It has been estimated by WHO that in 1975 there were some 500 million episodes of infant diarrhea, resulting in the death of five to eight million children below the age of five in Africa, Asia, and Latin America.

Studies in Guatemala indicate that a village child may have as many as six to ten bouts of diarrhea a year, each lasting an average of three days. In addition to being a pervasive killer, diarrhea is also a significant contributor to malnourishment in those children who survive. Diarrhea acts through increased malabsorption, reduced food intake caused by loss of appetite and food withdrawal, and fever to deprive children of needed nourishment.

Diarrhea is caused by both bacterial and viral agents, but the precise etiologies of diarrhea in developing countries is not well understood. Bacterial agents are transmitted by physical contact while viral agents rely largely on droplet or air-borne transmission. Bacterial agents account for the largest number of diarrheal episodes in poor countries and usually occur in a summer seasonal peak. The general clinical profile for both bacterial and viral cases is similar.

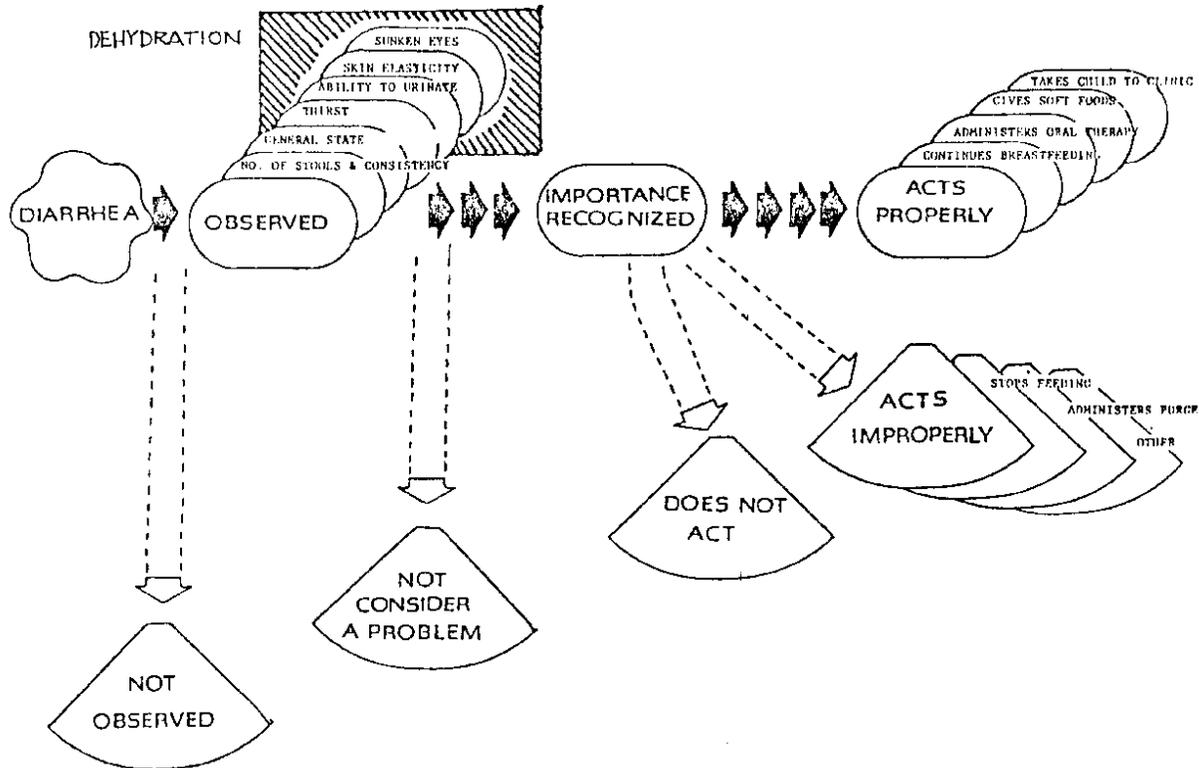
Unsanitary birth procedures and a mother's dirty hands or breasts represent potential sources of contamination to the newborn Infant but these are slight compared to those encountered as the child grows and begins to drink water and eat weaning foods. The primary source of bacterial contamination is human feces. Adults can discharge disease-causing bacterial agents in their feces and yet manifest no symptoms of disease. These agents may be transmitted to the child in a variety of ways including (a) direct contact with feces through another person's dirty hands, (b) direct contact through the child crawling on unclean surfaces, (c) indirectly through contaminated water which is then transmitted to the child through drinking water, bottle formula, or weaning foods, or (d) indirectly through hand transmission during preparation of weaning foods. Perhaps the most prolific source of infection is weaning foods. As they sit in tropical heat, bacterial growth increases phenomenally and contact with large numbers of these agents will produce diarrhea.

Because stool consistency and frequency varies from one child to another, the mother is considered the best judge of abnormality. Generally any increase in the number and liquidity of stools will be recognized as diarrhea. In some cases, the child may recover from the diarrhea within 24 hours, but a usual episode will last three days. In most cases, continued diarrhea will produce dehydration. The mother's response to diarrhea is highly dependent (see following graph) upon cultural practices but generally includes one or all of the following reactions:

1. Withhold food in the belief that it caused or may worsen the diarrhea, and an accompanying belief that the child's system needs to "rest."
2. Administer a cathartic or laxative purge to eliminate the cause of the diarrhea which may be seen as worms, parasites, etc.
3. Administer an anti-diarrheal substance which may reduce the amount of stool but will neither destroy the pathogen or improve the hydration.

If the child does not recover, prolonged or severe diarrhea will usually lead to dehydration. Dehydration in infants is particularly dangerous, because such a large percentage of the child's total body weight is body fluid and because the child is dependent on others to provide fluids. The physical signs of dehydration include the following:

Graph I: Material response to infant diarrhea



1. Dryness of mouth.
2. Loss of appetite.
3. Decreased skin turgor.
4. Sunken fontanel and eyes.
5. Crying without tears.
6. Vomiting.
7. General listlessness.

Even without proper care at this stage some children will recover, but some will continue to dehydrate and die. Death from diarrheal dehydration can occur within a matter of hours depending upon the severity of the diarrhea, the mother's response, and the child's prior nutritional level. Undernourished children tend to get diarrhea more frequently and more severely.

B. WHO's Diarrheal Disease Control Program

Perhaps the most comprehensive, and certainly the most recognized program for controlling infant diarrhea is being promoted by the World Health Organization. The WHO program hinges upon the discovery of a single modality, oral rehydration fluid which can be used to treat 85 to 95 percent of cases of dehydration from watery diarrhea in all age groups. This oral rehydration therapy (ORT) does not cure diarrhea, but prevents dehydration which leads to death. ORT largely replaces intravenous therapy which requires trained personnel, sterile fluids, and expensive equipment. ORT is simpler to administer, and much less expensive. This makes it less dependent upon highly trained health workers and fixed facilities, and compensates more quickly for nutritional loss due to diarrheal disease. ORT is not the only element in the WHO program, however. WHO also emphasizes the need for the following:

1. Adequate feeding during and after diarrheal bouts, including breastmilk, diluted formula, and regular foods given to children.
2. Antimicrobial agents, spasmolytics, and antidiarrheal drugs are not advocated because they distract the health care system from adequate oral therapy, or they may actually prolong the carriage of organisms in the gut and inhibit recovery.
3. Support of breastfeeding for its immunological properties and because it reduces the risk of exposure to contaminated substances.
4. Effective water and sanitation systems along with appropriate food and personal hygiene practices.
5. Health education programs which build upon an understanding of traditional practices and beliefs to promote positive changes in decision makers, mothers, health personnel, and community leaders.
6. Epidemiological surveillance to determine prevalence and incidence of diarrhea in order to select populations at high risk.

A seventh factor, the elimination of laxatives which act to increase the intensity of diarrhea, should be added.

C. Experience with Diarrheal Disease Control Components

In reviewing prior experience with diarrheal disease control programs, it is necessary to discuss specific elements of such programs independently. Few countries have taken the entire WHO proposed program and implemented it uniformly. Indeed, the official formulation of the WHO program is only two years old. There has been considerable experience with individual aspects of the program, however, particularly those aspects which most concern the MM&HP Project; namely, water and sanitation, breastfeeding, and the application of oral rehydration therapy. For the purposes of this document, highlights of the past experiences and research will be cited with particular attention given to those aspects.

1. Water Supply:

Many experts would agree with researchers at the University of North Carolina at Chapel Hill when they concluded in a 1978 report to USAID:

"The field study, over the limited period of four years did not demonstrate that a safe and available water supply leads to a decrease in diarrheal morbidity. The results of the study confirm what experts have surmised. When the study started, there was still confidence that the direct relationship between water supply and diarrheal disease could be demonstrated in the field. Epidemiologists now have reservations about the usefulness of these field studies because of the difficulties in isolating the numerous variables involved."

A 1976 World Bank study supports the view that conclusive results on the linkage of water supply improvements and positive changes in health status cannot be provided by field experiments due to the complexity of variables involved¹.

¹ "Measurement of the Health Benefits of Investment in Water Supply." Report No. PUN 20, January 1976, CPS, PVO, The World Bank

Two aspects of water supply are commonly stressed. Most attention has been given to the provision of clean water. This effort has focused on new water sources, reduced contamination, or sterilization through boiling. The first alternative is often expensive, the second usually involves the construction of latrine systems which are discussed below, and the third has been criticized as impractical in rural areas where fuel shortages and delays caused by boiling and subsequent cooling of water, are common. More recently, experts like Richard Feachem have supported water abundance over water purity. They argue that it is scarcity of water which prevents people from using it in personal hygiene. An abundant supply of moderately clean water which villagers use to wash hands frequently, is preferable, they say, to impractical water purification schemes.

There continues to be optimism that clean water and salutary water practices will lower diarrheal morbidity' but it is generally agreed that morbidity is affected by so many other factors that measurable effects are not presently demonstrable in the field.

2. Sanitation Systems:

Experience with the introduction of sanitation systems is actually more limited than that of water supplies. Here again, there is confidence, founded on human logic and an understanding of the sources in rural communities, that investment in sanitation systems is justifiable. But there is very little direct evidence to demonstrate that such systems reduce diarrheal morbidity in the field. Evidence often cited is drawn largely from experience in the U.S. which shows that over the period between 1900 and 1930 in New York City, a period when water and sanitation systems along with refrigeration were widely introduced and the general socioeconomic level increased significantly, infant mortality decreased from 145 per 1000 to 60 per 1000. The largest percent of these deaths-was caused by diarrheal dehydration. It has been argued that the reduced mortality was a consequence of the new infrastructural changes. Pineo and Buckles point out in a study on Mexican water and sanitation, "The realization of any health benefits at all requires that water supply, proper excretion disposal, and public hygiene improvements be regarded as related and necessary components of a single sanitation package."¹ Unfortunately, most research projects in poor countries are limited to dealing with only one or two of these changes at a time and over a much shorter period. The argument is not that water and sanitation programs are not useful, but that they do not produce short-term measurable effects, particularly when they are introduced independent of each other.

¹ Pineo, Charles and Buckles, Patricia. Full Report: Water Supply and Sanitation Component. Mexico Rural Development Project, July 1979. The World Bank.

3. Breastfeeding:

The promotion of breastfeeding has taken on a political complexion during the past few years. The increasing use of formula feeding by mothers, particularly in urban and semiurban areas is considered one of the leading causes of diarrhea, malnutrition, and other infant disorders in these populations. Many mothers adopt formula feeding because of its flexibility and ease of use, freeing them to work. Others are convinced by the aggressive marketing campaign of commercial formula companies and by the appeal or modernity that bottlefeeding has come to represent. Most poor mothers have no safe water to mix with the formula, no way to properly maintain bottle sterility, and often dilute the formula to make it last longer. These actions increase the likelihood of bacterial contamination and reduce the nutritional benefit of the product. As a response to this growth in improper bottlefeeding, a campaign has been launched

worldwide to promote continued breastfeeding and to develop appropriate weaning foods for children.

Breastmilk plays an important role in both the prevention and treatment of infant diarrhea. From a prevention viewpoint, breastmilk provides a natural immunity and is generally safe from contamination. From a treatment viewpoint, breastmilk, when given during ORT, helps provide extra water in addition to the salts in ORT, and helps restore the nutritional status of the child. Some questions do remain about lactose intolerance during episodes of diarrhea.

The promotion of breastmilk during episodes of diarrhea is hindered in some areas by the belief that breastfeeding following sexual activity causes diarrhea. For this and other reasons it is a common practice for mothers to stop breastfeeding when a child contracts diarrhea. Continued breastfeeding is then a logical target for instructional concern in the MM&HP Project. It relies on no outside resources but does represent a significant and difficult behavior to reinforce.

4. Weaning Foods:

It is generally held that "breast milk alone, from adequately nourished mothers, is sufficient food for infants up to six months of age. After six months, breast milk is a valuable supplement to weaning food." Breast is Best: Bibliography on Breast Feeding and Infant Health in Developing Countries. The actual weaning period varies from one culture to another. Supplemental feeding can be introduced almost immediately after birth in some cultures. It is more common that at three to five months, mothers will start introducing weaning foods, yet in some cultures weaning may be delayed until the ninth or tenth month. Weaning practices represent an important area for project research. In addition to identifying existing weaning schedules it will be necessary to look at the kind of weaning foods and the way in which they are prepared.

A great deal of research has been done on weaning food adaptation and development. Many experts argue that the former is preferred, especially in poor communities where people have few resources to purchase new weaning foods. Some aspects of preparation which seem crucial appear to be cooking temperature which destroys bacteria, reducing the time between food preparation and child feeding, hand-washing before food preparation which will reduce bacterial contamination, and use of clean or boiled water when possible. These prevention oriented behaviors are added to a shorter, but equally important list of treatment or recovery behaviors associated with weaning foods. Whitehead has pointed out that children recovering from illnesses need to produce catch-up growth.

Controversy continues to surround decisions about optimal weaning food composition. Experts like David Morley argue that new protein is not needed. Rather the addition of high calorie liquid fats commonly found in oils work to conserve and protect the protein already available in most weaning diets. Food bulk plays an important role in this process as well. Morley has pointed out that unreasonably large quantities of rice, for example, are required to meet growth needs, especially those manifested by children recovering from illness. This suggests that feeding messages in the MM&HP Project will have to be carefully selected with an understanding of existing local diets and availability of liquid oils.

(From: AED, Mass Media & Health Practices, Project Implementation)

Session 39, Trainer Attachment 39C: A story about diarrhea

Picture One

This is the story of Alioune. Here is young Alioune when he was a happy healthy child.

Picture Two

One day Alioune's sister Fatu was helping her mother bring home drinking water from the river where others do the wash and bring animals to drink. She began feeling pains in her stomach.

Picture Three

She had diarrhea by the river in the tall grasses where other people did the same. Then she went back home and poured the water in the clay pot in the kitchen where it was stored uncovered for drinking, cooking, and washing dishes.

Picture Four

She poured out some of the water into a baby bottle to feed to her little brother Alioune. She did not wash her hands or the baby bottle before she gave it to Alioune.

Picture Five

The next day Alioune cried all day long and had diarrhea. Mother told Fatu, "Babies always get diarrhea. Don't worry".

Picture Six

The next day Alioune still had diarrhea. His mother began to worry and decided that the only way to make him better was to stop giving him food.

Picture Seven

Alioune was very thirsty and cried for water but his mother did not give him water. She believed that water would make the diarrhea worse.

Picture Eight

Alioune became very weak and dry and still had diarrhea. His mother was very worried and she did not know what to do. When Alioune's father came home, he decided that the mother and baby should go to the clinic 10 kilometers away. He asked the local truck driver for a ride but the man demanded 100 francs and Alioune's father had only 50.

Picture Nine

Alioune's father tried to borrow money from his neighbor but the man had spent all his money on drink. He went to his boss Mr. Kola to ask for a loan. Mr. Kola refused, saying "You already owe 1000 francs from the last loan for Alioune's christening". Mr. Kola advised him "tell your wife to feed the family better so you and your children aren't so weak and thin".

Picture Ten

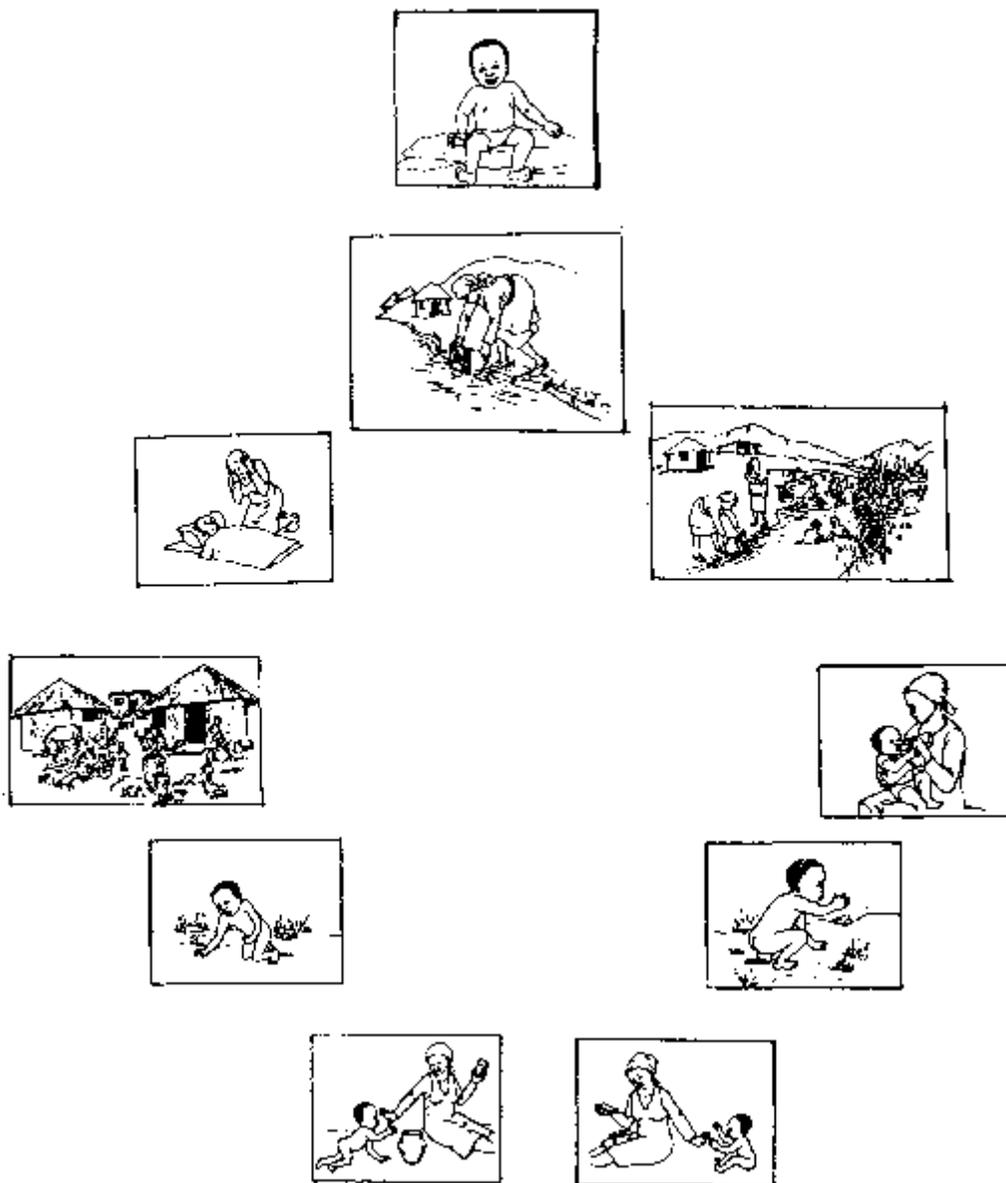
Five days later Alioune died. What caused Alioune's death? Could his death have been prevented?

(Adapted From: Helping Health Workers Learn and MEDEX Workbooks for Community Health Workers, no. 42. "Prevention and Care of Diarrhea".)

Session 39, Trainer Attachment 39D: Suggestions for using the picture story

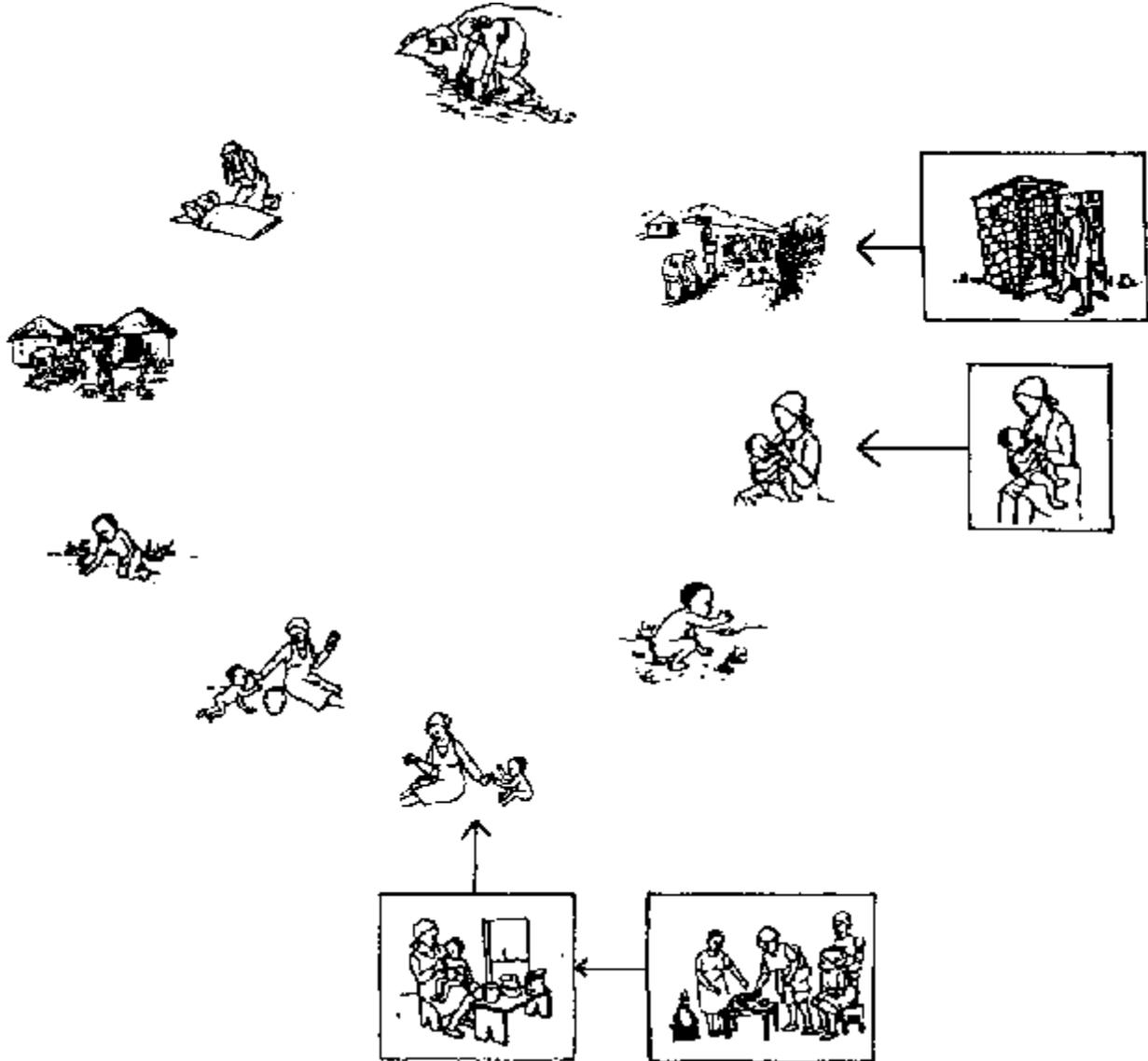
As you tell the story, hold up the appropriate picture. Then ask one of the participants to place it on the wall so that all the pictures form a circle going clockwise as shown below.

Suggestions for using the picture story



After the discussion of causes and interventions for diarrhea, ask participants to put the intervention pictures beside the pictures in the circle that the interventions affect, as shown below. Leave these pictures on the wall for reference in the next few sessions.

Suggestions for using the picture story (b)



(From: MEDEX, Illustrations For Training Community Health Workers)

Session 40: Dehydration assessment

Session 40, Handout 40A: Introduction to treatment of diarrhea

Session 40, Handout 40B: Assessing children with diarrhea

Session 40, Handout 40C: Who diarrhea treatment chart

Session 40, Handout 40D: Diarrhea and dehydration case assessments

Session 40, Trainer Attachment 40B: Guidelines for presentation of the who diarrhea

treatment chart

Session 40, Trainer Attachment 40C: Answers for case assessments

Session 40, Trainer Attachment 40D: Case studies for the treatment of diarrhea

TOTAL TIME: 3 hours

OVERVIEW

Specific checklists and charts that summarize "what to look for" help participants more accurately identify potential dehydration resulting from diarrhea.

In this session participants identify the visual signs and symptoms of dehydration resulting from diarrhea. Using the WHO Diarrhea Treatment Chart, they assess the signs of dehydration presented in case studies and determine the appropriate treatment plan to follow for severity and degree of dehydration. They close the session with a review of what they have learned and an optional discussion of how to adapt the treatment chart for use in the village.

OBJECTIVES

- To identify physical signs of dehydration. (Steps 1, 2)
- To use the WHO Diarrhea Treatment Chart to assess patients for signs of dehydration and to determine appropriate treatment plans. (Steps 4-6)

RESOURCES

- Treatment of Diarrhea (ORT Resource Packet)
- Helping Health Workers Learn Chapter 24, pp. 18-19

Handouts:

- 40A Introduction to Treatment of Diarrhea
- 40B Assessing Children with Diarrhea
- 40C WHO Diarrhea Treatment Chart
- 40D Diarrhea and Dehydration Case Assessments

Trainer Attachments:

- 40A Pictures of Children with Signs of Dehydration (to be developed by trainer)
- 40B Guidelines for Presentation of the WHO Treatment Chart
- 40C Answers for Case Assessments
- 40D Case Studies for the Treatment of Diarrhea
- 40E Adaptations of the WHO Treatment Chart

MATERIALS

Slide viewing equipment; slides or pictures of children with physical signs of dehydration; poster-size version of WHO Diarrhea Treatment Chart; newsprint and markers; plastic bag, water and gourd baby.

PROCEDURE

Trainer Note

Prior to this session, gather photos or slides of children who exhibit some of the following signs of dehydration:

- dry cracked lips
- slightly sunken eyes
- inelastic skin (pinched skin does not respond after two seconds)
- weight loss
- sunken fontanelle
- sad listless appearance

Also obtain a copy of the poster-size WHO Diarrhea Treatment Chart (available from either the WHO country coordinator or local UNICEF representative), one or two days before this session, ask a participant with some health background to prepare an introduction to the WHO chart for the group during Step 3. Help the participant prepare the introduction using the guidelines and information found in Trainer Attachment 40B and Handouts 40A-40C.

Please note that Handouts 40A-40D are from the WHO CCCD Supervisory Skills manual entitled "Treatment of Diarrhea". Since this module is included in the Trainees' ORT resource packets, reproduction of the handouts should not be necessary.

If more information on diarrheal diseases is needed, please refer to the Peace Corps [Training Manual on Oral Rehydration Therapy and the Control of Diarrheal Diseases](#).

Step 1 (20 min.)

Dehydration Picture Gallery

Post the pictures or show the slides of children who exhibit some of the signs of dehydration. Ask the participants to examine the pictures/slides and to individually record the physical symptoms they observe. In addition, have participants jot down in descriptive terms how each of the children appears to feel (e.g., lethargic, inactive). Instruct participants not to talk with each other while they are making their notes.

Step 2 (20 min)

Discussion of Observations in Pictures

Show the pictures or slides of dehydrated children one at a time and ask the participants to share their recorded observations. Write their response on newsprint and post the appropriate picture next to it. Summarize the signs when all the pictures have been posted. Discuss with the group the limitations of looking alone. Note the signs that require asking and feeling.

Trainer Note

If any of the visible signs as stated in Handout 40B (Assessing Children with Diarrhea) and Handout 40C (WHO Diarrhea Treatment Chart) were not stated, be sure to mention and record them after the picture has been shown and the participants observations have been noted.

Some of the participants' observations may relate more to malnutrition, vitamin deficiencies and/or certain infectious diseases than to dehydration. While the children in the photos may indeed be suffering from these conditions, the purpose here is to concentrate on and discuss only

the symptoms of dehydration.

Step 3 (20 min.)

Introducing the WHO Chart

Post a copy of the large WHO Diarrhea Treatment Chart in front of the room along with the definitions of diarrhea and dehydration that are found in the Trainer Note below. After the group has had a chance to look over the chart and definitions, ask the pre-selected participant to present and explain how to use the chart as an assessment tool. Allow time for any questions or concerns the group may have before moving on to the next step.

Trainer Note

Simply defined:

Diarrhea is a disease characterized by frequent passage of abnormally loose or watery stools.

Dehydration is loss of a large amount of water and salt from the body.

Acute Diarrhea is characterized by three or more abnormally loose or watery stools per day for three weeks or less and is caused by an infection of the bowel.

Chronic Diarrhea is characterized by diarrhea lasting more than three weeks and is caused by an infection of the bowel, undernutrition, or by worms and other parasites.

Step 4 (20 min)

Practice Assessment of Diarrhea and Dehydration

After the introduction of the chart, distribute Handout 40C (WHO Diarrhea Treatment Chart) and Handout 40D (Diarrhea and Dehydration Case Assessments). Have the participants form small groups, and work through the exercises in the handout. Suggest that they review the pictures of children with signs of dehydration to help them complete the assessment exercises more easily.

Tell them to only answer the questions pertaining to the assessment of the cases and to hold their answer for treatment until later.

Trainer Note

If participants have a copy of the WHO Supervisory Skills Treatment of Diarrhea, tell them to look at the WHO chart on pages 12 and 13 and do the exercises on pages 28-31. An alternative to this step is to arrange for the participants to visit a clinic and practice assessing children whose presenting complaints appear to be caused by diarrheal diseases. Time for this visit will need to be scheduled accordingly.

Step 5 (20 min)

Comparison and Discussion of Assessments

Reconvene the group. Ask each small group to report and initiate discussions on one of the case studies. The reports should include explanations of the assessment process. Depending on the

number of small groups and number of exercises, some groups may have to report on more than one case. Allow time for questions and discuss any differences of opinion or conflicting answers. Also, have participants describe any difficulties encountered in using the WHO chart; encourage them to help each other solve these problems.

Trainer Note

Use Trainer Attachment 40C (Answers for Case Assessments) as a reference for the discussion of answers here and in Step 7.

If time is limited, you can go through the case assessments in a larger group discussion. Another option is to use the cases in the "Treatment of Diarrhea" module for self instruction. Have participants work individually and check their own answers as "home work". Provide an opportunity for questions and answers if you use this last option.

15 Minute Break

Step 6 (20 min)

Determining Proper Treatment of Diarrhea and Dehydration

Using Trainer Attachment 40D (Case Studies for the Treatment of Diarrhea) describe to the group two sample cases of dehydration. Tell participants to review their WHO Treatment Charts and describe the kind of treatment required in each case. Have the group identify specifically what the health worker should do and what the health worker should tell the mother to do in each of the cases.

Trainer Note

For the case using Treatment Plan A, the following rules for home treatment should be stressed:

- Increase fluids
- Continue feeding (food should be offered 5-7 times a day).
- Look for signs of dehydration.
- Give the sugar-salt or ORS solution every time the child has a loose stool, and, if the child vomits, wait 10 minutes and then continue to give the solution in small amounts.
- The mother should go to a clinic if diarrhea persists for longer than 2 days or at the first signs of dehydration.

Emphasize that Treatment Plan A is extremely important and that, if begun at the first sign of diarrhea, this treatment may prevent dehydration.

The main points to underscore in Treatment Plan B are:

- The amount of ORS to give depends on the child's weight and/or age.
- The child's status should be reassessed after four to six hours of treatment.
- This plan should be followed if the child shows two or more signs of dehydration.

In both cases the solutions should not be kept more than 24 hours.

Emphasize that treatment Plan C is for health clinic use. Any case with two or more of the symptoms in Column C should be referred to a clinic immediately. The participants should understand that their role, for the most part, will be in explaining to mothers how to make and when to give sugar-salt solution and when children should be referred to health centers for treatment with ORS packets.

Step 7 (30 min)

Case Studies

Ask the participants to go back to the case studies from Step 4 and individually answer the questions which refer to treatment. Tell them to use the WHO Treatment Charts and the previous discussion to help them answer the questions.

After 20 minutes, ask for volunteers to read their answers. Discuss any differences or difficulties the group encountered in using the chart.

Step 8 (15 min)

Review of the Session

Ask a participant to summarize the main points they learned in this session.

Trainer Note

This summary should include the main things to "look for" in assessing dehydration and when to refer children to health centers.

If possible, the participants should visit a health center where they can observe children who are being treated for diarrhea and some dehydration. Emphasize to the group that they would need considerable practice assessing dehydration in children, under the supervision of an experienced health worker, before they could safely assess dehydration cases on their own.

Optional Step 8 (20 min)

Charts as Teaching Tools for Village Application

As a final application of the material from this session, have participants evaluate the advantages and disadvantages of the WHO Treatment Chart as a teaching tool for community health workers.

The discussion should include some of the following questions:

- Is the chart easy to understand and follow?
- What, if any, modifications are needed to use the chart in training literate community health workers?
- How can the chart be adapted to make it appropriate for training non-literate community health workers?

Trainer Note

Explain that the WHO Treatment Chart was developed as a basic model for adaptation to specific country conditions. Stress the importance of retaining the most essential information when such adaptations are made. These are summarized in Trainer Attachment 40E (Adaptation of the WHO Treatment Chart).

Sessions 25 and 26 contain information on adapting materials for use with different target groups.

Session 40, Handout 40A: Introduction to treatment of diarrhea

WHAT IS DIARRHOEA?

The number of stools normally passed in a day varies with the diet and the person. In diarrhoea, stools contain more water than normal—they are often called loose or watery stools.

Mothers usually know when their children have diarrhoea. When diarrhoea occurs they may say that the stools smell strongly or pass noisily, as well as being loose and watery. By talking to mothers you can often find a useful local definition of diarrhoea. In many societies, diarrhoea is 3 or more loose or watery stools in a day.

Diarrhoea is most common in children, especially those between 6 months and 2 years of age. It is also common in babies under 6 months who are drinking cow's milk or infant feeding formulas.

Frequent passing of normal stools is not diarrhoea

Babies who are breastfed often have stools that are softer than normal; this is not diarrhoea.

ACUTE AND CHRONIC DIARRHOEA

Acute diarrhoea starts suddenly and may continue for several days. It is caused by infection of the bowel.

Chronic diarrhoea may vary from day to day and lasts for more than 3 weeks. It can be caused by things such as undernutrition, infection, worms or other parasites in the gut.

WHY IS DIARRHOEA DANGEROUS?

The two main dangers of diarrhoea are death and undernutrition.

Death from acute diarrhoea is usually caused by loss of a large amount of water and salt from the body. This loss is called dehydration.

Diarrhoea is worse and more common in persons with undernutrition. Diarrhoea can cause undernutrition and can make it worse because:

- (a) nutrients are lost from the body in diarrhoea,
- (b) a person with diarrhoea may not be hungry, and

(c) mothers often have a bad habit of not feeding children while they have diarrhoea, or even for some days after the diarrhoea is better.

Food should be given to children with diarrhoea as soon as they will eat.

HOW DOES DIARRHOEA CAUSE DEHYDRATION?

The body normally takes in the water and salts it needs (input) through drinks and food. It normally loses water and salts (output) through stool, urine, and sweat.

When the bowel is healthy, water and salts pass from the bowel into the blood. When there is diarrhoea, the bowel does not work normally and less water and salts pass into the blood. Thus, more than the normal amount of water and salts are passed in the stool.

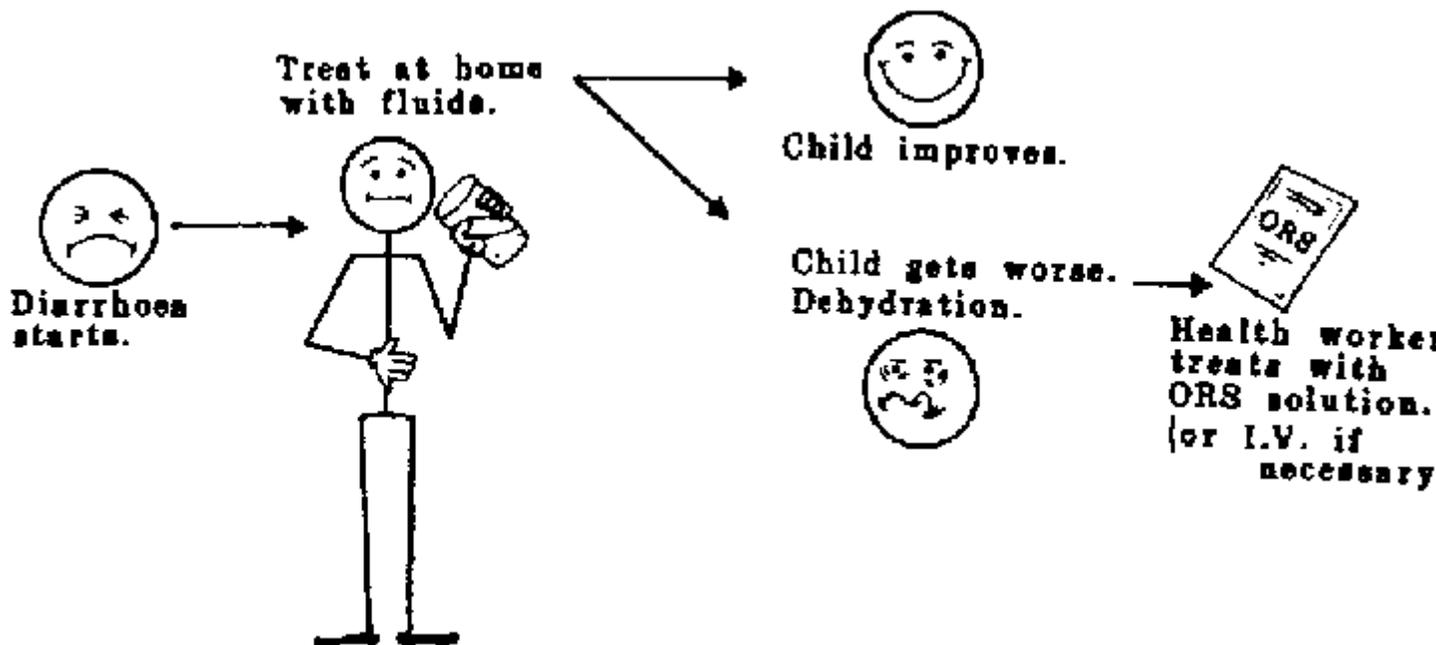
This larger than normal loss of water and salts from the body results in dehydration. It occurs when the output of water and salts is greater than the input. The more diarrhoea stools a patient passes, the more water and salts he loses. Dehydration can also be caused by a lot of vomiting, which often accompanies diarrhoea.

Dehydration occurs faster in infants and young children, in hot climates, and when there is fever.

TREATING DIARRHOEA

The most important parts of treatment of diarrhoea are to (1) prevent dehydration from occurring if possible and (2) treat dehydration quickly and well if it does occur.

Treating diarrhoea



Prevention of Dehydration: Dehydration can usually be prevented in the home by drinking more fluids as soon as the diarrhoea starts. To do this, give locally available fluids, such as rice water, fruit juice, weak tea, or special homemade sugar and salt solutions and/or increase breastfeeding.

The types of fluid or solutions used in your area for preventing dehydration in the home will depend on:

- local traditions,
- availability of salt and sugar,
- access of people to health services,
- availability of oral rehydration salts (ORS),
- national policy.

Treatment of Dehydration: If dehydration occurs, the child should be brought to a community health worker or health centre for treatment. The best treatment for dehydration once it has occurred is oral rehydration therapy using a solution made with oral rehydration salts (ORS). This treatment will be described in this module. Although this module talks mostly about treating children with diarrhoea, the same treatment is also good for adults with diarrhoea. For treating dehydration, ORS should always be used if possible.

Throughout this module you will have to consider the recommendations that are made and apply them to the conditions in your own health area.

LEARNING OBJECTIVE

The tasks necessary to treat diarrhoea are shown in the following chart. The information, examples, and practice exercises in this module should prepare you to do these tasks in your own health area.

Perform the following step regularly, whenever you have the opportunity:

Educate family members about home treatment of diarrhoea. 1.0		
Assess child with diarrhoea. 2.0	Treat child with diarrhoea. 3.0	Record data on child. 4.0
• <i>Assess degree of dehydration. Look for signs or symptoms indicating another serious problem.</i>	• <i>Select treatment plan and treat for dehydration. Treat for any other serious problems.</i>	

EDUCATE FAMILY MEMBERS ABOUT HOME TREATMENT OF DIARRHOEA.

Dehydration can often be prevented if certain procedures are followed in the home when a child gets diarrhoea. Teaching family members that diarrhoea can and should be treated at home is very important. They also need to learn how to give the treatment.

Family members may learn from many sources, such as radio broadcasts, schools, posters, community meetings, or visits to a health centre or community health worker. You will need to meet with community leaders and community members to identify several sources which together will reach all the families in the health area. With help and cooperation from community members, each family can learn about treatment of diarrhoea in the home.

Community health workers and workers at health facilities should explain the 3 rules of home treatment to mothers and other family members whenever they have the opportunity (for example, when a mother comes for prenatal visits or brings her child for immunization).

When explaining how to treat diarrhoea at home, a health worker should also show the mother what to do so she will understand and remember. For example, how much fluid the child should be given, or how to make sugar and salt solution, can be better shown than explained.

A mother should also be allowed to practice what she learns (for example, mixing the solution) to make sure she can do it.

For those things that are explained but not practiced (for example, actually feeding the child), the health worker should ask the mother to tell in her own words what she has learned, to be sure she remembers.

The 3 rules for treating diarrhoea in the home are discussed on the next 2 pages. They are also shown in a shorter version on "How to Treat Diarrhoea at Home" (the small card for mothers) and in Treatment Plan A on the DIARRHOEA TREATMENT CHART, which health workers should keep for reference. Whenever a child gets diarrhoea, the mother (or other family member who is caring for the child) should follow these rules.

3. RULES FOR HOME TREATMENT OF DIARRHOEA

1. Give the child more fluids than usual.

- If the child is breastfed, try to give breast milk more often. If the child is not breastfed, increase the amount of normal milk feed but dilute the feed with an equal volume of water.

- Give the child

- locally available drinks or liquids, such as rice water, soups, weak tea, or fruit juices, and/or

- carefully prepared sugar and salt solutions. These solutions can be made in several ways (see Annex 1).

Give the child



Children under 2 years old should receive approximately 50-100 ml (1/4-1/2 cup) of fluid after each loose stool, and older children should receive twice this amount. Adults should take as much as they want to drink.

2. Continue feeding the child.

Starving a child who has diarrhoea can cause undernutrition or make it worse.

All children 4 months old or older who have been weaned should be offered solid food during diarrhoea. The best foods to give are those which are easily digested (such as boiled rice, porridges, soups, milk products, eggs, fish, and well-cooked meat) and those containing potassium (such as pineapple, bananas, and coconut water). Some fat or oil may also be given.

Even though absorption of nutrients from food is lessened during diarrhoea, most of the nutrients will be absorbed.



A child should be allowed to eat as much as he wants. Food should be offered often (5-7 times a day) during diarrhoea, because the child is not likely to eat much at each time. The child should have at least one extra feed a day for a week after the diarrhoea has stopped.

3. Watch for signs of dehydration.

Discussion of the signs of dehydration begins on page 8 of this module. If a child develops any sign of dehydration, or if his diarrhoea lasts another 2 days, the mother should take the child to the health centre or community health worker.

Home Treatment of Diarrhoea

1. INCREASE fluids
2. CONTINUE food
3. WATCH for signs of dehydration

(From: WHO Supervisory Skills, "treatment of Diarrhoea")

Session 40, Handout 40B: Assessing children with diarrhea

Since the most dangerous effect of diarrhoea is dehydration, the first step in treatment of diarrhoea should be to assess the patient for signs of dehydration. The procedure outlined in this step should be followed when a health worker sees a child whose mother has stated that diarrhoea is the reason, or one of the reasons, for the child's visit. (Health workers should be familiar with all locally used words for diarrhoea or to identify various signs of diarrhoea.) These same procedures should be followed again when the health worker reassesses the patient after some treatment has been administered.

NOTE: Mothers will probably expect you to give a treatment that will stop the child's diarrhoea. It may be necessary to explain that oral rehydration treatment is meant to atop or prevent dehydration, and explain why this is more important than stopping the diarrhoea.

ASK, LOOK, AND FEEL FOR SIGNS OF DIARRHOEA OR OTHER SERIOUS PROBLEMS.

The signs a health worker should ask, look, and feel for are listed below and on the next page, and in the table "How to Assess Your Patient". Fold out this table now. Read the following list to become familiar with the questions a health worker should ask, the conditions he should feel for, and the things he should look for. As you are reading this material, also refer to the fold-out table to learn how to interpret each sign.

The health worker should:

ASK the following questions:

- How many liquid stools per day has the child had? For how long has the child had diarrhoea? Is there blood (more than 1 or 2 streaks) and mucus in the stool?
- Has there been any vomiting? If so,

- Has there been more than a small amount?
- How frequently has the child vomited?
- Is the child able to drink? If so, is he thirstier than normal?
- Has the child passed urine in the last 6 hours? If so,
 - Is it a normal amount or a small amount?
 - Is it darker than normal?

LOOK for the following conditions'

- What is the child's general condition?
 - Is he well and alert?
 - Is he unwell, sleepy, or irritable?
 - Is he very sleepy, floppy, or unconscious?
 - Is he having fits?

- Is he severely undernourished? Notes A health worker may be able to tell by observation whether a child has severe undernutrition. If he cannot tell by observation, he can determine whether a child between 1 and 5 years old is undernourished by measuring the upper arm. If the distance around the arm is less than 12.5 cm, the child is severely undernourished. One way to measure the arm is with a tri-coloured arm strip (see Annex 2). If the red part of the strip is touched, the child is severely undernourished.

- Does the child have tears when he cries?
- Are his eyes normal, sunken, or very dry and sunken?
- Is his mouth wet, dry, or very dry?
- Is his breathing normal, faster than normal, or very fast and deep?

FEEL for the following:

- When the skin is pinched, does it go back quickly, slowly, or very slowly (longer than 2 seconds)? In a baby, the health worker should pinch the belly; he may also pinch the back of the neck, or back of the hand. Note: Pinching the skin may give misleading information in severely undernourished or obese patients. In the severely undernourished patient, the skin may go back slowly even if the patient is not dehydrated. In the obese patient, the skin may go back quickly even if the patient is dehydrated.
- Can the pulse be felt? If so, is it normal, faster than normal, very fast, or weak?
- Is the fontanelle (the soft spot on top of the head) normal, sunken, or very sunken? Note: This is a helpful sign only in children whose fontanelle is not yet closed (usually children under 12 months old).

WEIGH the child, if a weighing machine is available.

The reasons for weighing the child are: (1) If the child has been weighed routinely, you can notice sudden weight losses during a diarrhoeal illness which can indicate the presence and extent of dehydration, and (2) weighing the child at intervals during therapy is helpful in assessing the progress of dehydration.

- If a weighing machine is available, carefully weigh the child unclothed or lightly clothed. If the child has been routinely weighed and his weight has been recorded, compare the child's present weight with his last recorded weight.

Has there been any weight loss during the diarrhoea? If so, has there been a weight loss of 25-100 grams for each kilogram of the child's weight or has the weight loss been more than 100 grams for each kilogram of weight?

This may be difficult to determine without a very accurate weighing machine. For this reason, it is best to rely on your assessment of the other signs to make a judgement about dehydration.

- If a weighing machine is not available, do not delay treatment.

TAKE temperature:

- Does the child have a high fever (more than 38.5°C or 101°F)? Notes Take the child's temperature either in the rectum or the armpit. Rectal temperature should be taken if the health worker is used to that procedure and has several rectal thermometers or is able to disinfect the thermometer after each use. Otherwise, the axillary (armpit) temperature should be taken.

DETERMINE APPROPRIATE TREATMENT.

- Locate on the table "How to Assess Your Patient" the signs which describe the child's condition.

- Determine if any of the signs in Column D are present. If so, there are serious problems which require treatment in addition to any treatment which may be needed for dehydration. Treat these problems according to customary practice or refer for treatment. If there is much blood and mucus in the stool and high fever, suspect dysentery. Treat this problem with antimicrobials.

- Determine the degree of dehydration.

- Look at Column C. If 2 or more of the signs listed in that column are present, conclude that the patient has severe dehydration.

- If 2 or more signs from Column C are not present, look at Column B. If 2 or more of the signs listed in that column are present, conclude that the patient has some dehydration.

- If 2 or more signs from Column B are not present, conclude that the patient has no signs of dehydration.

- Select the appropriate treatment plan on the degree of dehydration. These treatment plans are described on the DIARRHOEA TREATMENT CHART, which you will be given.

For no signs of dehydration, select Treatment Plan A - To Prevent Dehydration.

For some dehydration, select Treatment Plan B - To Treat Dehydration with ORS Solution.

For severe dehydration, select Treatment Plan C - To Treat Severe Dehydration Quickly.

EXAMPLE: A mother brought her 3-year-old daughter, Rania, into a clinic because she had diarrhoea. The clinic worker asked, looked and felt for signs of dehydration. Here is the table "How to Assess Your Patient" with his findings circled:

HOW TO ASSESS YOUR PATIENT

	A	B	C	D
1. ASK ABOUT:				
DIARRHOEA	Less than 4 liquid stools per day	4 to 10 liquid per day	More than 10 liquid stools per day	Longer than 3 weeks duration (chronic diarrhoea) Blood or mucus in the stool
VOMITING	None or a small amount	Some	Very frequent	
TWISTING	Normal	Greater than normal	Unable to drink	
URINE	Normal	A small amount, dark	No urine for 6 hours	
2. LOOK AT:				
CONDITION	Well, alert	Unwell, sleepy or irritable	Very sleepy, unconscious floppy or having fits	Severe undernutrition
TEARS	Present	Absent	Absent	
EYES	Normal	Sunken	Very dry and sunken	
MOUTH and TONGUE	Wet	Dry	Very dry	
BREATHING	Normal	Faster than normal	Very fast and deep	
3. FEEL:				
SKIN	A pinch goes back quickly	A pinch goes back slowly	A pinch goes back very slowly	
PULSE	Normal	Faster than	Very fast, weak,	

		normal	or you cannot feel it	
FONTANELLE (in infants)	Normal	Sunken	Very sunken	
4. TAKE TEMPERATURE				High fever - 38.5°C (or 101°F) or greater
5. WEIGH IF POSSIBLE	No weight loss during diarrhoea	Loss of 25-100 grams for each kilogram of weight	Loss of more than 100 grams for each kilogram of weight	
6. DECIDE	The patient has no signs of dehydration	If the patient has 2 or more of this signs, he has some dehydration	If the patient has 2 or more these danger signs, he has severe dehydration	If the patient has chronic diarrhoea, undernutrition, or high fever, treat or refer to ___ for treatment. If there is blood or mucus in the stool and high fever, suspect dysentery and treat with antimicrobials.
	Use Plan A	Use Plan B	Use plan C	

Because Rania had blood and mucus in her stool and a high fever (Column D), the clinic worker suspected dysentery and prescribed Ampicillin. Since Rania had no signs from Column C and only 1 sign from Column B, the clinic worker determined that she had no signs of dehydration. He thus used Treatment Plan A to prevent Rania from becoming dehydrated.

(From: WHO Supervisory Skills, "Treatment of Diarrhoea")

Session 40, Handout 40C: Who diarrhea treatment chart

HOW TO ASSESS YOUR PATIENT				
	A	B	C	D
1. ASK ABOUT:				
DIARRHOEA	Less than 4 liquid stools	4 to 10 liquid per day	More than 10 liquid stools per	Longer than 3 weeks duration (chronic diarrhoea)

	per day		day	Blood or mucus in the stool
VOMITING	None or a small amount	Some	Very frequent	
TWISTING	Normal	Greater than normal	Unable to drink	
URINE	Normal	A small amount, dark	No urine for 6 hours	

2. LOOK AT:

CONDITION	Well, alert	Unwell, sleepy or irritable	Very sleepy, unconscious floppy or having fits	Severe undernutrition
TEARS	Present	Absent	Absent	
EYES	Normal	Sunken	Very dry and sunken	
MOUTH and TONGUE	Wet	Dry	Very dry	
BREATHING	Normal (20-30)	Faster than normal (30-40)	Very fast and deep (40-60)	

3. FEEL:

SKIN	A pinch goes back quickly	A pinch goes back slowly	A pinch goes back very slowly	
PULSE	Normal (less than 120)	Faster than normal (120-140)	Very fast, weak, or you cannot feel it (over 140)	
FONTANELLE (in infants)	Normal	Sunken	Very sunken	
4. TAKE TEMPERATURE				High fever - 38.5°C (or 101°F) or greater

5. WEIGH IF POSSIBLE	No weight loss during diarrhoea	Loss of 25-100 grams for each kilogram of weight	Loss of more than 100 grams for each kilogram of weight	
6. DECIDE	The patient has no signs of dehydration	If the patient has 2 or more of this signs, he has some dehydration	If the patient has 2 or more these danger signs, he has severe dehydration	If the patient has chronic diarrhoea, undernutrition, or high fever, treat or refer to ___ for treatment. If there is blood or mucus in the stool and high fever, suspect dysentery and treat with antimicrobials.
	Use Plan A	Use Plan B	Use plan C	

TREATMENT PLAN A TO PREVENT DEHYDRATION

EXPLAIN TO THE MOTHER HOW TO TREAT DIARRHOEA AT HOME FOLLOWING THREE RULES:

1. GIVE YOUR CHILD MORE FLUIDS THAN USUAL, such as:

- rice water, fruit juice, weak tea, or salt and sugar solution and
- breast milk, or milk feeds mixed with equal amounts of water

2. GIVE YOUR CHILD FOOD:

- as much as he wants
- 5 to 7 times a day
- which is easy to digest
- which contains potassium

3. WATCH FOR SIGNS OF DEHYDRATION. (You must show the mother how to ASK, LOOK AND FEEL for the signs. Then ask her to show you.) BRING YOUR CHILD BACK, IF:

- you see any signs
- your child has diarrhoea for another two days

TELL THE MOTHER THESE RULES ARE IMPORTANT. EXPLAIN THAT SHE CAN PREVENT DIARRHOEA, IF:

- she gives her child fresh, clean and well-cooked food and clean drinking water
- she practices good hygiene

SHOW THE MOTHER HOW TO PREPARE AND GIVE ORS SOLUTION AT HOME, IF:

- her child has been on Plan B
- it is national policy to give ORS solution to all children who visit a health centre for diarrhoea treatment

- the mother cannot come back if the diarrhoea gets worse

GIVE THE MOTHER ENOUGH ORS PACKETS FOR 2 DAYS

AFTER EACH LOOSE STOOL, TELL HER TO GIVE:

- 50-100 ml (1/4-1/2 cup) of ORS solution for a child less than 2 years old
- 100-200 ml for older children. Adults can take as much as they want

If the child vomits, tell her to wait 10 minutes and then continue slowly giving small amounts

NOTE: Children being given ORS solution should not also receive salt and sugar solution.

TREATMENT PLAN B TO TREAT DEHYDRATION WITH ORS SOLUTION

1. USE THIS TABLE TO SEE HOW MUCH ORS SOLUTION IS SUITABLE FOR 4-6 HOURS TREATMENT:

Patient's weight in kilograms							
Patient's age *							
Give this much solution for 4-6 hours	in ml:	200-400	400-800	800-800	800-1000	1000-2000	2000-4000
	in local unit of measure:						

* Use the patient's age only when you do not know the weight

If the patient wants more ORS solution, give more. If the eyelids become puffy, stop and give other fluids. Use ORS solution again when the puffiness is gone.

If the child vomits, wait 10 minutes and then continue slowly giving small amounts of ORS solution.

2. IF THE MOTHER CAN REMAIN AT THE HEALTH CENTRE

- tell her how much ORS solution to give her child
- show her how to give it
- watch her give it

3. AFTER 4-6 HOURS REASSESS THE CHILD. THEN CHOOSE THE SUITABLE TREATMENT PLAN.

NOTE: FOR CHILDREN UNDER 12 MONTHS CONTINUING TREATMENT PLAN B AFTER 4-6 HOURS, TELL THE MOTHER TO GIVE:

- breast milk feeds between drinks of the ORS solution, or
- 100-200 mls of clean water before continuing ORS if she coos not breast feed her child

4. IF THE MOTHER MUST LEAVE ANY TIME BEFORE COMPLETING TREATMENT PLAN B, TELL HER:

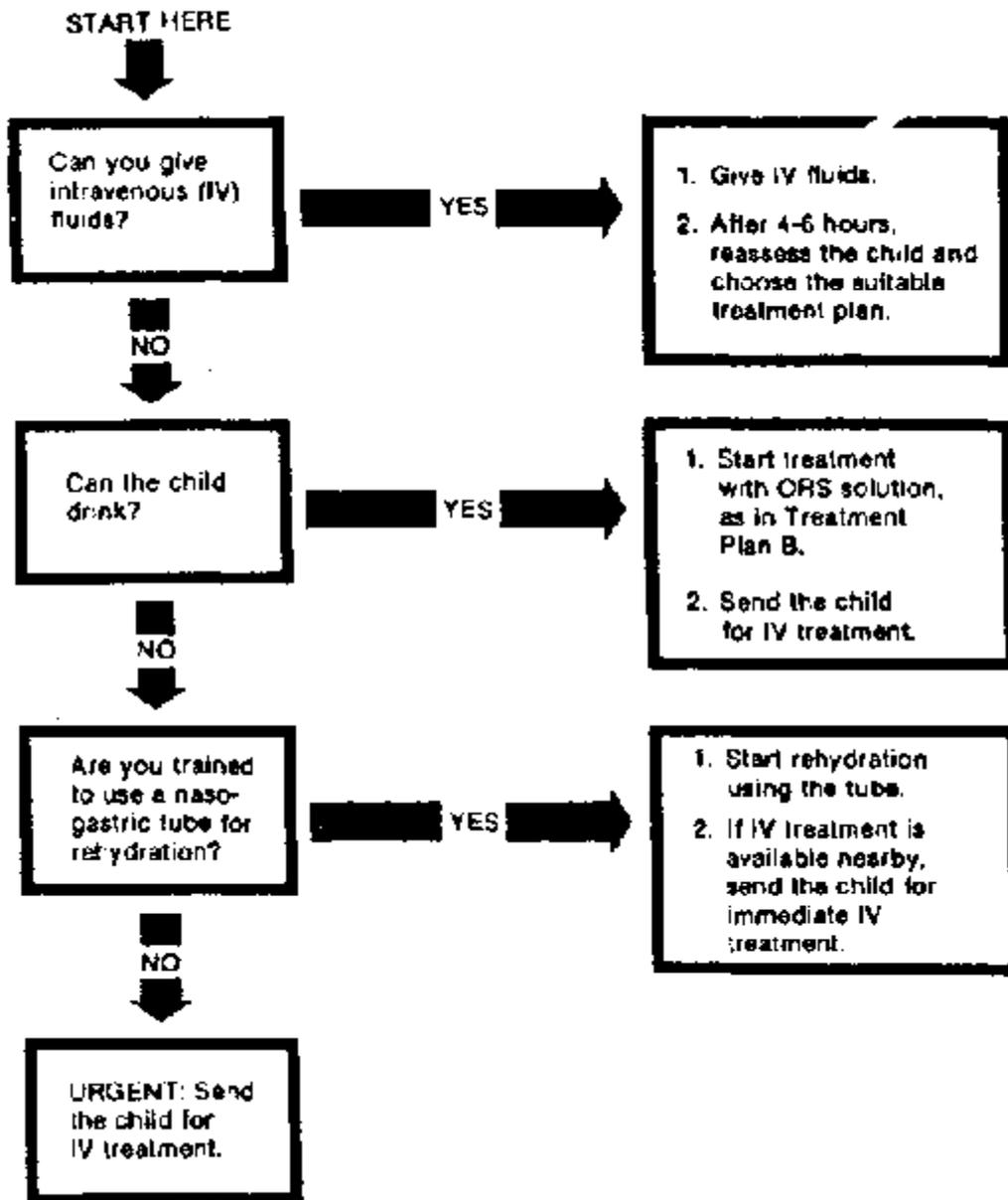
- to finish the 4-6 hour treatment as in 1. above
- to give the child as much ORS solution as he wants after the treatment
- to look for the signs of dehydration and, if the child has any, to return the next morning

Give her enough ORS packets for 2 days and show her how to prepare ORS solution.

Explain briefly how to prevent diarrhoea.

TREATMENT PLAN C TO TREAT SEVERE DEHYDRATION QUICKLY

Follow the arrows. If the answer to the questions is 'yes', go across. If it is 'no', go down.



NOTE: If there is a high fever, show the mother how to cool the child with a wet cloth and tanning.

(From: WHO Supervisory Skills, "Treatment of Diarrhoea")

Session 40, Handout 40D: Diarrhea and dehydration case assessments

In this exercise you will read descriptions of 3 different children with diarrhoea. For each child, you will assess the degree of dehydration, select a treatment plan, and describe the treatment you would give.

Refer to the DIARRHOEA TREATMENT CHART as you work. You should become familiar with the chart so that you will be comfortable referring to it when you treat patients who come to you.

CASE 1

Sione is 5 months old. His mother is breastfeeding him. His diarrhoea started last night and he has had 8 stools which were very watery. He also vomited. The health worker looks for blood and mucus in the stool but cannot see any.

As the health worker examines Sione, she finds that the skin pinch goes back slowly, the fontanelle is a little sunken, and the eyes are a little sunken. Sione does not have a fever and is not vomiting now. His urine amount is normal.

- a. Does the child have signs of dehydration? If yes, describe them.
- b. Is he severely dehydrated?
- c. Which treatment plan should the health worker select and follow?
- d. How much ORS solution should be given to the child in the first 4-6 hours?
- e. What should be done if the child vomits?
- f. When should the child be reassessed?

When the health worker reassesses Sione, she finds that he is still having some diarrhoea. His skin pinch goes back quicker than before, but his eyes and fontanelle are still a little sunken.

- g. Describe the treatment to be given now.

After another 4 hours, Sione looks much better. His eyes have filled out, the fontanelle is normal, and the skin pinch goes back quickly.

- h. What should be done next? Why?

CASE 2

Ana is 3 years old and weighs 13 kg. Her diarrhoea started 24 hours ago and she has had 3 liquid stools. Her mother took her to the home of the community health worker. As the health worker

assesses the child, he finds that she looks quite well. Her mouth is wet, her skin when pinched goes back quickly, her eyes look normal, her pulse is normal, and she passes urine normally. However, her mother says she wants to drink a lot.

- a. Identify the sign(s) of dehydration which Ana has.
- b. What treatment plan should the health worker select and follow?
- c. It is the policy of the national diarrhoeal diseases control programme to give ORS solution to children who visit a health worker for treatment of diarrhoea. The health worker gives Ana's mother enough ORS packets for 2 days and shows her how to mix and give ORS solution. Ana's mother gives Ana about 200 mls of ORS now. When should the mother give Ana ORS solution again, and how much should she give to her?
- d. What advice should the mother be given about feeding the child? (List the liquids and foods available in your area.)
- e. What should the mother do in the future when the child gets another episode of diarrhoea?

CASE 3

Dano is 8 months old. He is already weaned. His mother brings him to a community health worker because he has had diarrhoea for a week and it is now worse. (There have been more than 10 liquid stools the day she brings him to the health worker). Dano has received no food since the diarrhoea started. He is very quiet and floppy. He has passed no urine since last night. When he cries there are no tears. The health worker takes the child's temperature and finds that it is 40°C. Dano has very dry and sunken eyes and a very sunken fontanelle, and a very fast pulse. However, he is conscious and opens his eyes to look at the health worker.

- a. What signs of dehydration does Dano have?
- b. Is there some dehydration or severe dehydration
- c. Are there any other serious problems?

The community health worker is not able to provide IV treatment, so he decides to send Dano with his mother to the health centre.

- d. What should he do for Dano before the child is sent to the health centre (Dano is able to drink)?

Dano and his mother arrive at the health centre where IV treatment can be administered. This health centre uses Ringer's Lactate solution. The nurse weighs Dano and finds he weighs 5 kilos.

- e. How much IV fluid should be given to the child the first hour?

Two hundred ml of IV fluid are given to the child within the next 2 hours. His fever is treated according to the customary procedure of the health centre. The child's progress is assessed. The number of stools is decreasing and he has urinated. His eyes and fontanelle are still sunken, his pulse is not as fast, and he is a little more alert.

- f. What should the child be given during the next 3 hours? How much should be given?

After 6 hours of therapy, Dano's fontanelle is a little sunken. His eyes are sunken but not dry, and his pulse is normal. He no longer has a high fever.

g. What treatment plan should be selected and followed?

(From: WHO Supervisory Skills, "Treatment of Diarrhoea")

Session 40, Trainer Attachment 40B: Guidelines for presentation of the who diarrhea treatment chart

Explain the purpose of the Chart

- To show how to assess patients for signs of diarrhea and dehydration
- To serve as a reference for medical personnel.

Briefly review the kind of information included on the chart and the layout of the chart pointing to the parts of the chart as you mention them.

- What to ask about, look at, feel and measure are listed in the left column.
- Across the top of the chart are three columns, A, B and C.
- Listed under A are symptoms indicating no dehydration.
- Listed under column B are symptoms indicating mild dehydration.
- Listed under column C are symptoms showing severe dehydration and other danger signs that require treatment at a clinic.
- Columns A, B, and C refer to treatment plans that you will discuss later in the training session.

Explain how the information on the chart relates to the earlier discussion of the signs and symptoms of dehydration. Briefly review and illustrate the following definitions of diarrhea and dehydration:

Diarrhea is a disease characterized by frequent passage of abnormally loose or watery stools.

Dehydration is loss of a large amount of water and salt from the body.

Use visual aids such as those shown below to illustrate these definitions.

For example: They can pick 2 flowers, put one in water, and keep the other without water. They will see that one lives while the other wilts and dies. Ask them why this happens

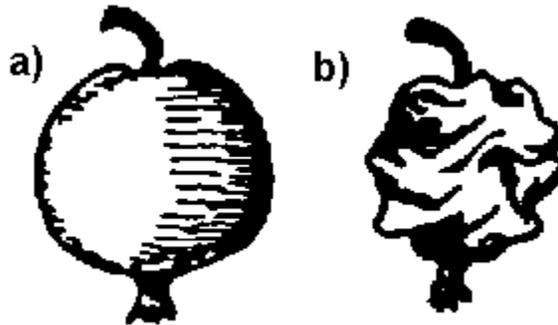
with
water



without
water



Or the children can put a fruit like a plum or guava in the hot sun to see what happens to it.



- a) Fresh fruit full of water
- b) Fruit after it dries in the sun. It shrinks and wrinkles.

Ask the children what they think happens to a baby when he dries out. Right! He loses weight and can even become wrinkled.

See [Helping Health Workers Learn](#) for additional ideas.

Distinguish between chronic and acute diarrhea.

Acute Diarrhea is characterized by three or more abnormally loose or watery stools day for three weeks or less and is caused by an infection of The bowel.

Chronic Diarrhea is characterized by diarrhea lasting more than three weeks and is caused by an infection of the bowel, undernutrition or by worms and other parasites.

- Explain that all children who show signs listed under Column D alone or in conjunction with signs from Columns A, B or C need to visit a health center for treatment with specific drugs as well as with oral rehydration solution.

- If watches are available with second hands, have participants practice taking a pulse and timing respiration rates. Ask them to take their temperature under the arm and in the mouth and

compare their readings, if thermometers are available in the community health center. (There is usually a 1 degree difference).

Close the step by mentioning the five things a person should do in his or her continued assessment of the child's condition.

- Ask the mother about the child's condition
- Look for signs indicating the child's condition
- Feel the child for skin elasticity, pulse rate and sunken fontanelle
- Weigh the child
- Take the child's temperature.

Session 40, Trainer Attachment 40C: Answers for case assessments

Case 1

a. Yes. Sione has the following signs of dehydration:

8 watery stools
some vomiting
a skin pinch which goes back slowly
a sunken fontanelle
eyes that are a little sunken

b. No. Sione is not severely dehydrated.

c. The health worker should select and follow Plan B - Treat Dehydration with ORS solution.

d. The child should be given 200 to 400 ml of ORS solution in the first 4 hours.

e. If the child vomits, wait 10 minutes. Then, give more ORS solution slowly in small amounts.

f. The child should be reassessed after 4-6 hours.

g. Since some of the signs of dehydration are still present, Treatment Plan B will still be followed. Sione should be given 200 to 400 ml of ORS solution for another 4-6 hours. He should be breastfed between the times he is receiving ORS solution. This procedure should be repeated until the signs of dehydration have gone.

h. Plan A should be selected because there are no longer signs of dehydration, and the health worker wants to ensure that further dehydration is prevented.

Case 2

a. Ana has only one sign of dehydration. She is thirstier than normal.

b. The health worker should select and follow Plan A to prevent dehydration.

c. The child should be given 100-200 ml (or 1/2 - 1 cup) of ORS solution after each diarrhoea stool.

d. Give increased amounts of locally available fluids such as _____.

Feed the child as much as she wants 5 to 7 times a day, especially food that are easily digested such as _____ and those containing potassium such as _____.

e. Keep feeding the child and giving fluids. Also, watch for the signs of dehydration and bring the child to a health worker if they appear, or if the diarrhoea lasts another 2 days.

Case 3

a. Dano has the following signs of dehydration:

- more than 10 liquid stools a day
- quiet and floppy
- no urine for 6 hours
- dry eyes
- very sunken eyes
- very sunken fontanelle
- very fast pulse

b. There is severe dehydration.

c. Dano has a high fever of 40°C.

d. The health worker should prepare ORS solution for his mother to begin giving while taking Dano to the health centre (400-600 ml). The solution should be given frequently in small amounts, such as by spoon.

e. The child should be given 150 ml (30 x 5) of IV fluid the first hour.

f. The child should be given 200 ml (40 x 5) of ORS during the next 3 hours.

g. Plan B should be selected and followed.

(From: WHO, Supervisory Skills, "Answer Sheets".)

Session 40, Trainer Attachment 40D: Case studies for the treatment of diarrhea

TREATMENT PLAN A

The three treatment plans are found on the DIARRHOEA TREATMENT CHART. Look at that chart now and read "Treatment Plan A", which describes treatment that should be given when your assessment has shown no signs of dehydration. Then do the following exercise.

A mother has brought her 11-month-old child to a Community Health Worker because the child has diarrhoea. The mother is breastfeeding the child. She says she lives far from the health worker and might not be able to come back for several days, even if the child gets worse. The health worker asks, looks and feels for signs of dehydration and finds that the child has none. He decides to begin treatment using Treatment Plan A. The mother mentions that usually she gives her children rice water when they get diarrhoea but heard that the Community Health Worker has something better.

Describe what the health worker would do and what he would tell the mother.

Answer:

Your answer should cover these points in your own words. It may be less detailed than this.

The health worker would first compliment the mother for bringing her child before he got very sick.

He would tell the mother to increase the amount of fluids offered to the child. This would include increasing the amount of breast milk and giving other locally available fluids, such as rice water. He would explain that giving rice water, weak tea, or juice is a good practice when children get diarrhoea.

He would explain that the mother should feed the child often (5-7 times a day) with foods that are easily digested and which contain potassium (and would give examples of these foods that the mother would know).

He would explain to the mother how to watch for and recognize signs of dehydration and make sure she understands. Note: Some health workers tell mothers only the more obvious signs of dehydration (so they will not have so much to remember). These are:

- greater than normal thirst,
- dark urine,
- unwell, sleepy or irritable condition,
- sunken eyes,
- sunken soft spot on the top of the head,
- a pinch of skin goes back slowly.

He would tell the mother to come quickly to the health centre or to a community health worker if signs of dehydration appear or if the diarrhoea lasts another 2 days.

He would explain to the mother how diarrhoea can be prevented by giving the child fresh, clean and well-cooked food and clean drinking water, and by practicing good hygiene.

Because the mother lives far away, the health worker would then give her enough ORS to last 2 days. He would show her how to prepare ORS solution and make sure she understood. He would tell her to give the child 50-100 ml of ORS solution after each loose stool, show her how much that is, and have her begin giving ORS solution to the child. He would also tell her what to do if the child vomits.

TREATMENT PLAN B

Now read "Treatment Plan B", describing treatment when some dehydration is present, on the DIARRHOEA TREATMENT CHART. Then do the following exercise. Remember that it is important to give ORS solution in small amounts, as with a spoon, and at a steady pace.

SHORT-ANSWER EXERCISE

1. A child with diarrhoea has some signs of dehydration. The child weighs 5 kg and is 8 months old. How much ORS solution should be given to him during the first 4-6 hours?

2. A mother has brought her 2-1/2-year-old daughter to the health facility. The child was assessed and found to have some signs of dehydration. While at the facility, the mother gave her 700 ml of ORS solution within 4 hours. After 4 hours, the child was reassessed and it was determined that she still had some of the signs of dehydration but she was improving. Assuming that the mother can stay at the facility, what should be done next?

3. A one-year-old baby with diarrhoea was brought to the health centre by his grandmother. The baby was assessed and found to have some signs of dehydration. The grandmother must leave soon because her bus will be leaving and her home is too far away for her to walk. What should the health worker do?

Answers:

1. 200 to 400 ml of ORS solution should be given in a period of 4 hours. (When both the weight and the age of the child are known, determine the amount of solution needed according to the child's weight.)

2. Give the child an additional 600 to 800 ml of ORS solution during the next 4-6 hours.

3. Mix some ORS solution, showing the grandmother how it is done. Show the grandmother how to feed the baby the solution, slowly with a spoon, and ask her to begin now. Tell the grandmother:

- to continue for 4-6 hours until 600 mls has been given.
- after that, to give as much solution to the baby as he wants.
- if the baby's eyelids become puffy, stop giving ORS solution and give other fluids instead until the eyelids return to normal. Then resume ORS solution.

Two packets of ORS should be given to the grandmother. The signs of dehydration should be pointed out and explained to the grandmother. The grandmother should then repeat them and show how she will look for them in the morning. If any of the signs of dehydration are still present in the morning, the grandmother should bring the baby back to the health centre.

TREATMENT PLAN C

Read "Treatment Plan C," describing treatment for severe dehydration, on the DIARRHOEA TREATMENT CHART. Also read Annex 5, "Oral Rehydration Using a Nasogastric Tube," and Annex 6, "Intravenous Therapy for Severe Dehydration". Then do the following exercise:

SHORT-ANSWER EXERCISE

1. A 9 kg. child who is very drowsy and cannot drink is brought to a small health centre. There is no IV equipment at the health centre but the health worker knows how to use a nasogastric tube. How much ORS solution should be given through the nasogastric tube in the first hour?

2. A 4-month-old baby weighing 5 kg. has received 350 mls of IV fluid in 3 hours and is improving. She can now drink. Complete the following sentence to show the correct treatment.

Give _____ mls of _____ within the next ____ hour(s).

3. A 3-month-old boy weighing 4 kg. has been treated for severe dehydration for 6 hours, first with IV for 3 hours and then with ORS solution for 3 hours. The child has just been reassessed. He is improving but still has some signs of dehydration. Complete the following sentence to show the correct treatment.

Give _____ mls of _____ within the next _____ hour(s).

Answer:

1. 180 ml ($20 \times 9 = 180$) (The child weighs 9 kg, and Annex 5 specifies 20 ml/kg.)
2. Give 200 ml ($40 \text{ ml} \times 5 \text{ kg}$) of ORS solution within the next 3 hours.
3. Give 200 to 400 ml of ORS solution within the next 4-6 hours (Amount of ORS solution is based on the table in Treatment Plan B on the DIARRHOEA TREATMENT CHART.

TREATMENT OF OTHER SERIOUS PROBLEMS

Refer to the DIARRHOEA TREATMENT CHART and Annex 7 of this module as needed as you do the following exercise:

SHORT-ANSWER EXERCISE

A child is brought to you for treatment of diarrhoea. The child is 1 year old and weighs 10 kg. You assess the child and find that he has some dehydration. You also find that he has a fever of 40.5°C and blood and mucus in the stool.

In addition to ORS treatment for his dehydration, what other treatment should you give the child?

Answer:

You should begin antimicrobial treatment for possible dysentery. According to Annex 7, the drug of choice would be either Ampicillin or Trimethoprin-Sulfamethoxazole. If you chose Ampicillin, the dose would be 1000 mg a day ($100 \text{ mg} \times 10 \text{ kg}$) in 4 doses. That would be 250 mg given 4 times a day. The treatment would be continued for 5 days.

You should also try to lower the fever (for example, with a wet cloth and fanning).

(From: WHO Supervisory Skills, "Treatment of Diarrhoea")

Session 40, Trainer Attachment 40E: Adaptation of the who treatment chart

The following information is basic and should be Included In even the simplest version of the chart.

1. Ask about: All information
2. Look at: Condition - well alert, sleepy, kiss fits.
3. Feel skin - pinch
4. Fever - burning

Treatment Plan A

1. Give homemade sugar-salts solution after each loose stool 1/2 to 1 glass depending on age.
2. If child vomits wait 10 minutes and give a very small amount of liquid again.
3. Give other liquids (tea, breastmilk, etc.) and other foods (multimix, carrot, soup, etc.) 5 to 7 times a day.
4. Check for signs of dehydration, look, touch.

Treatment Plan B

1. Give solution made with ORS packets.
For children 6 months, give 1 to 4 glasses of pre-mixed solution in 4 to 6 hours.
For children 6 to 12 months give 4 to 6 glasses.
For children aged 18 months to 3 years give 6 to 8 glasses.
2. Check for puffy eyelids. Stop giving until eyelids return to normal.
3. After 4 to 6 hours check dehydration status (skin, urine quantity, area of mouth Is watery).
4. Give breastmilk or other liquid in between ORS.
5. If child vomits wait 10 minutes to give again,
6. After 12 hours make new solution.

Treatment Plan C

1. Send to Health Center immediately.

Session 41: Rehydration therapy

Session 41, Handout 41A: Oral rehydration therapy preparation worksheet

Session 41, Trainer Attachment 41A: Materials and equipment needed for two oral rehydration therapy stations

Session 41, Trainer Attachment 41B: Explanation and overview of types of rehydration solution

Session 41, Trainer Attachment 41C: Suggestions for a lecturette on the hows and whys of ORS

Session 41, Trainer Attachment 41D: Using models to show why rehydration is important

Session 41, Trainer Attachment 41E: Five steps of diarrhea and its management

Session 41, Trainer Attachment 41F: Oral rehydration therapy: the scientific and technical basis

Session 41, Trainer Attachment 41G: Storing and maintaining supplies of oral rehydration salts (ORS)

TOTAL TIME: 3 hours

OVERVIEW

Effective treatment of dehydration requires the replenishment of salts, fluids, and nutrients to the body. Rehydration is necessary for all types of diarrhea. In Session 40 participants learned the signs and symptoms of diarrhea and dehydration that indicate the use of Treatment Plans A

(sugar and salt) to prevent dehydration, B (ORS) to treat some dehydration, and C (IV or nasogastric tube) for treatment of severe dehydration and rapid rehydration needs. In this session they develop a further understanding of the biological need for rehydration and the reasons for the effectiveness of ORS. Through hands - on experience, participants learn to correctly mix ORS and sugar-salt solutions and clarify the usage of each treatment method.

OBJECTIVES

- To explain why oral rehydration is necessary for the prevention and/or treatment of dehydration. (Step 1)
- To explain the components of two kinds of oral rehydration therapies and the appropriate use of each solution. (Steps 2, 4, 5)
- To accurately mix two kinds of oral rehydration solutions. (Step 4)

RESOURCES

- "Oral Rehydration Therapy for Childhood Diarrhea", Population Reports.
- "The Treatment of Diarrhea", (WHO CDD Supervisory Skills).

Handout:

- 40C WHO Diarrhea Treatment Chart (from Session 40)
- 41A ORT Preparation Worksheet

Trainer Attachments:

- 41A Materials and Equipment Needed for Two Oral Rehydration Therapy Stations
- 41B Explanation and Overview of Types of Rehydration Solutions
- 41C Suggestions for a Lecturette on the How and Whys of ORT
- 41D Using Models to Demonstrate Diarrheal Dehydration
- 41E Five Steps for the Management of Diarrhea
- 41F Oral Rehydration Therapy: The Scientific and Technical Basis
- 41G Storing and Maintaining Supplies of ORS
- 41H Cautious Prescriptions

MATERIALS

Read Trainer Attachments 41A, 41C, and 41D for a list of materials and equipment needed for practice stations and for presenting the information in Step 1. Newsprint, markers.

PROCEDURE

Trainer Note

In strict adherence to WHO guidelines, Peace Corps advocates the use of only two types of ORT solutions-ORS packets and sugar-salt solutions in Peace Corps projects and in this training program. As discussed in Session 40, and reviewed in this session, WHO Treatment Plans A and B outline the appropriate and effective use of these two solutions. Before this session, find out what recipes for oral rehydration therapies the government and other agencies are using. In some areas more than one agency may be encouraging the use of ORT with different recipes. Be prepared to discuss these differences in recipes and their potential for confusing the public.

Please note that research is currently being conducted on "rice powder" ORT. Rice-powder ORT substitutes rice powder (i.e., ground rice) for glucose, an essential component of the standard OR formula. (Rice-powder ORT should not be confused with rice water. Rice water is the fluid drained from the rice after cooking. Since it generally contains very little salt and variable amounts of rice starch, rice water is considered unsuitable for active rehydration. It is not an oral rehydration therapy.) Possible advantages and disadvantages of rice-powder ORT are being studied but no conclusion can be drawn until further research is done.

Trainers should only emphasize rice powder ORT in countries where a definite policy and guidelines on this subject have been developed and operationalized by the MOH. Only in countries where definite policies exist should rice powder ORT be incorporated as an ORT approach. In such cases, the trainer has the responsibility of becoming familiar with exact MOH guidelines and explaining those to the participants through discussion and a handout.

The main purpose of this session is to provide the participants with hands-on practice in correctly preparing the prepackaged and sugar-salt solutions. To ensure that all participants gain practice in mixing and tasting each solution you should, in advance of this session:

- Prepare two work stations with the materials and equipment listed in Trainer Attachment 41A.
- Write and post at each station concise and informative work descriptions (see Trainer Attachment 41B).
- Identify individuals in the group or training center who have had experience using and preparing these therapies to act as resource persons during Step 4.
- Measure all locally available utensils and ingredients that will or can be used in preparing the solutions. If one-liter containers are not commonly available, you must adjust the formula accordingly (as in Trainer Attachment 41B). It is important that the participants be as exact as possible when preparing the solutions. Please stress this point.

Step 1 (20 min)

Demonstration and Discussion of Why Rehydration is Important

Introduce this session using the plastic bag, the gourd baby and/or the watered and wilted flowers to illustrate the need to rehydrate a child with diarrhea (as suggested in Trainer Attachment 41D). During this demonstration explain the affects of diarrhea and dehydration and the five steps in the management of diarrhea (Trainer Attachment 41E). Ask participants to review Treatment Plan A on the WHO chart and explain what the demonstration they just observed tells them about the importance of Plan A.

Briefly discuss the fluids available in village homes that are already used or could be used during diarrhea to prevent dehydration (including sugar-salt solution and others mentioned in Handout 40C) Also discuss any cultural beliefs that might help or hinder teaching mothers to give children liquids during diarrhea.

Trainer Note

One main point of this activity is to illustrate the importance of rehydration using a clear and simple technique that participants can also use with mothers in the village.

It also provides a way to reinforce the importance of Treatment Plan A in the WHO Chart. Specifically, participants should recognize that the prevention of dehydration is a major goal for their health education efforts in ORT. Refer back to the circle of pictures that you made for the diarrhea story in Session 39 (The Vicious Cycles of Diarrhea). Note that oral rehydration is one important intervention in the circle.

Step 2 (15 min)

Lecturette an the Hows and Whys of ORS

Point to the pictures or show the slides of the signs of dehydration that were introduced in Session 40. Ask someone to summarize the signs of dehydration. Explain that these physical signs are caused by the loss of sodium, potassium and nutrients during diarrhea, in addition to the loss of water.

Present the lecturette that you prepared using Trainer Attachment 41C (Suggestions for a Lecturette on the Bows and Whys of ORT). If possible use a simple diagram to illustrate the way that the body chemistry balance is affected by diarrhea.

Ask someone to describe Treatment Plan B on the WHO chart. Discuss the ingredients in ORS and how they help the body regain its chemical balance. Ask someone to explain in their own words when they would give ORS to a child with diarrhea and what the ORS does for the child.

Briefly discuss how people in the village have responded to ORS packets (or are likely to respond if they have not been introduced to them). Build on the discussion of cultural beliefs regarding the acceptability of liquids (from Step 1).

Close this step by telling the participants that they will be spending the rest of the session preparing the two different oral rehydration solutions; sugar-salt solution, to be used at the first sign of diarrhea to prevent dehydration and ORS, to be used to treat some dehydration.

Trainer Note

Prepare two sheets of newsprint with the recipes for ORS and for sugar-salt solution as stated in Trainer Attachment 41B.

During the group's discussion of these two recipes, make sure that the following points are covered:

- Potassium is an essential element in the body and is lost during diarrhea. A minimum level of potassium is needed for the body to function.
- The amount of salt listed is that amount which is sufficient to replace sodium and water loss.
- Glucose is preferred to sucrose (table sugar) because it helps the body absorb liquid more quickly.
- Sodium bicarbonate helps prevent "acidosis", a condition that decreases the dehydrated child's

appetite.

- Mention that as of 1985 the new WHO formula replaces bicarbonate of soda with trisodium citrate which has been found to increase the shelf life of the packets and also appears to reduce stool volume.

- Homemade sugar-salt solutions made properly and used correctly along with other nutrients may prevent dehydration but is not adequate treatment for dehydration because it lacks potassium in sufficient amounts to replenish body losses.

- ORS packets which are pre-measured and contain the added ingredients of potassium and bicarbonate of soda or trisodium citrate are important to use when treating some cases of dehydration and may prevent the need for implementing Treatment Plan C, (IV or Nasogastric Therapy) which is indicated for more life threatening situations.

- None of these solutions once prepared should be kept longer than 24 hours. A fresh quantity should be made daily.

For more technical background see Trainer Attachment 41F (Oral Rehydration Therapy: The Scientific and Technical Basis).

Step 3 (20 min)

Preparing to Mix Oral Rehydration Solutions

Demonstrate how to mix the two kinds of oral rehydration solutions. Have one or two people do return demonstrations and have the group critique their performance. Pass the solution around and have everyone taste it.

Explain that everyone will be working in small groups at oral rehydration stations for the next hour. Each group will carry out the following tasks at each station:

- Read the instructions for preparing the solution at your station and take turns mixing and tasting that particular solution. (The solutions should taste no saltier than tears.)

- Discuss and complete Handout 41A (The ORT Preparation Worksheet) prior to moving to the next station.

- Clean up the station and leave it in the same state as you found it when you arrived.

Trainer Note

In doing the demonstration, make sure that you:

- Emphasize washing hands before mixing the solutions.

- Show all the utensils needed, using locally available items.

- Clearly state the ingredients and proportions, stressing the importance of being as accurate as possible.

- Emphasize that too much salt is dangerous to the child: too much water makes the solution ineffective.

- Cover the solution after it is mixed.

- Explain how to store ORS packets. You can refer to Trainer Attachment 41G (Storing and Maintaining Supplies of Oral Rehydration Salts) and page 19 in the "Treatment of Diarrhoea".

An alternative approach is to do a correct demonstration, then tell participants that you will be doing an incorrect demonstration and you want them to tell you what you did wrong. This repetition helps them learn and remember the steps in mixing the solutions.

Step 4 (60 min)

Preparing Oral Rehydration Solutions

Ask the participants to form two small groups, and move to their first station, and begin preparing the solutions.

Trainer Note

During this step you should:

- Have resource people who have experience mixing the solutions located at each station to observe, correct and assist the participants with any problems or questions they may have. The resource people should make sure each participant uses proper hygienic techniques when mixing the solutions (e.g., washing their hands and all utensils before and after making the solution).

- Make sure each station has adequate supplies and ingredients available for each new group.

- Assign each group the task of reporting on one solution. These reports should include information contained in Handout 41A (ORT Preparation Worksheet) and incorporate information from the WHO Diarrhea Treatment Chart as to how much solution should be given, when it should be given and what other fluids and foods should be given when the child is being treated with the solution that they have been assigned to report on.

15 Minute Break

Step 5 (30 min)

Discussing the Use of Oral Rehydration Solutions In The Village

Reconvene the group and ask each small group to report back on their experience at one of the stations. Have someone from each group record the answers on newsprint using the format from Handout 41A. Allow about 5 minutes for each work station report. Encourage con meets and discussion after each presentation.

Ask participants to think about what they have learned and answer the following questions:

- What treatment should be advocated when a child has diarrhea, some signs of dehydration, and/or severe dehydration? Why?

- What problems do you foresee in motivating the community to prepare and/or use these solutions?

- What can you do to overcome some of these problems?

Trainer Note

Some of the issues to discuss here are:

- Difficulty or lack of understanding in the village related to the importance of accurate measuring.
- The use of too much salt or sugar.
- The availability of ORS packets.
- The importance of adapting recipes to the locally available materials used for measuring ingredients.
- The cost and possible lack of ingredients for making home solutions.
- The possibility of limited water supply and dirty water. (see Trainer Attachment 43D from Session 43 for further discussion on this point).

Make sure that everyone understands the difference between preventing and treating dehydration and recognizes the need for the potassium and sodium bicarbonate or trisodium citrate (in the ORS packets) for treating dehydration.

Emphasize the importance of adapting the sugar-salt solution recipe to use locally available ingredients and to amounts appropriate for the utensils available for measuring.

Following this step you may want to use the optional step (Discussing Drugs Used to Treat Diarrhea).

Step 6 (10 min)

Session Summary

Ask the participants to summarize the key points that should be taught about rehydration solution preparation and administration in the communities and how they would do this.

Trainer Note

Information on how to educate community and family members about home treatment of diarrhea can be found in the WHO CDD Supervisory Skills Module, "Treatment of Diarrhoea", and is also discussed in Session 43.

Optional Step 7 (15 min)

Discussing Drugs Used to Treat Diarrhea

Depending on the health background and task assignments of the participants, you may want to use Trainer Attachment 41H (Cautious Prescription) and page 55 of "Treatment of Diarrhoea" to discuss the types of diarrheal diseases that do require drugs in addition to oral rehydration.

Discussion questions may include:

- What kinds of drugs are commonly used to treat diarrhea in this country?
- Why is the use of drugs dangerous?
- How can we overcome the idea that drugs are the best cure for any kind of diarrhea?
- What do people in local communities think about the power and/or danger of medicines?
- Who should decide whether a drug is needed to treat a case of diarrhea?

Trainer Note

Emphasize that drugs should be "cautious prescriptions". They should be given cautiously and only when there is a clear indication (such as bloody stools and high fever) that the cause of the diarrhea is a disease that requires drug treatment. Drugs should be prescribed by a qualified health worker. They should never be given as a routine practice for treating diarrhea. A drug that is not needed can be harmful to the body in a variety of ways;

- giving the drug is likely to divert the mother's attention from oral rehydration;
- widespread use of drugs promotes the development of drug-resistant strains of diseases;
- antibiotics are expensive.

You may want to assign two people to visit a local pharmacy or store to ask about and get samples of drugs commonly used to treat diarrhea in the host country. You can ask them to report their findings at the beginning of this step.

Session 41, Handout 41A: Oral rehydration therapy preparation worksheet

Observation Items (1-7)	Pre-packaged Solution (ORS)	Homemade Solution (sugar- salt)
1) List of Solution Ingredients and Amounts		
2) Availability of Ingredients		
3) Length of Time for Solution Preparation		
4) Difficulty of Instructions for Solution Preparation		
5) Problems in Solution Preparation		
6) Materials (Equipment) Needed to Prepare Solution		
7) When to Use the Solution (Treatment Plan A or B?)		

Session 41, Trainer Attachment 41A: Materials and equipment needed for two oral rehydration therapy stations

Introduction

The set-up for these stations is intended to permit participants to learn how to prepare the various kinds of oral rehydration solutions under organized clean conditions, using local utensils and measures. Modify these preparations to fit government standards for ORT preparation.

Each Station should have:

- soap and water for hand washing
- clean water for mixing the solution
- ladle or means of drawing water
- hand towels
- spoons or instruments for stirring
- drinking glasses or cups for tasting solution
- large (over one liter) receptacle to mix the solution.

Station 1: Pre-packaged Solutions

- Proper size containers (usually over one liter but marked to give volume corresponding to exactly one liter) for mixing packets and water
- Enough packets for all participants to mix the solution.

Station 2: Homemade Solutions: Sugar and Salt

- Proper size container for mixing solution
- Measuring spoons for sugar and salt
- Plenty of salt and sugar (if baking soda is available, and part of the government standards for mixing ORT solutions, include it)
- Knife for leveling measurements

If the government standard measurements are the handful and the pinch, have the participants compare the weighed amounts of ingredients with their own "handful" and "pinch". This reduces variation in measurement resulting from differences in hand size and perceptions of what constitutes a handful or a pinch.

If locally available salt is very coarse, provide a means to grind it for more accurate measurement.

Session 41, Trainer Attachment 41B: Explanation and overview of types of rehydration solution

HOW TO MAKE HOMEMADE SALT AND SUGAR SOLUTION

A special drink (salt, sugar, and water) can be made to treat diarrhoea and prevent dehydration at home. There are many methods that can be used for measuring the correct amounts of sugar and salt. Following are 2 examples.

Example 1

This example shows a method for mixing 1 litre of special drink.

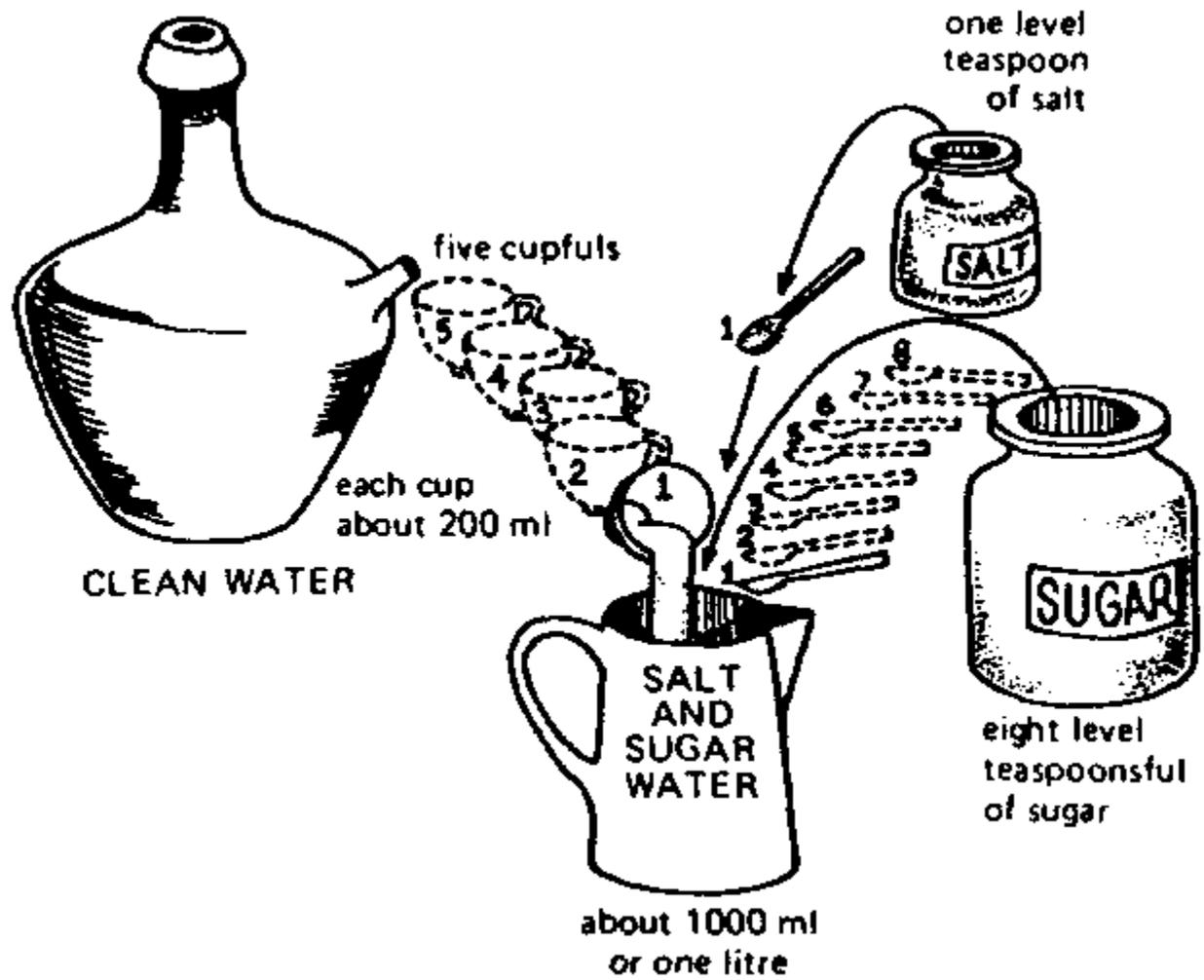
What you need

A spoon. This should be a small spoon, a "teaspoon," that holds 5 ml (ccs) of fluid or less,
A clean container that will hold 1 litre or a little more,
Salt, as used on food or for cooking,
Sugar of any sort, unrefined lump sugar or purified sugar,
Drinking water (clean or boiled water).

What to do

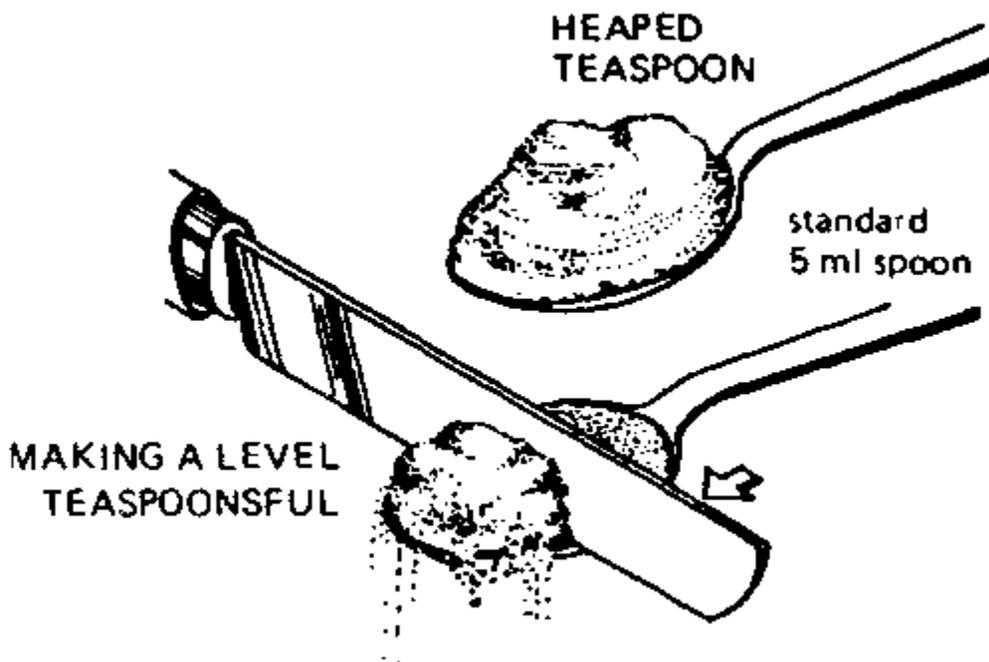
1. Measure 1 litre of drinking water into the container. 5 cupfuls or 5 glass-fuls are about 1 litre.
(See Figure 1)

Figure 1: Making salt and sugar water



2. Take salt in a teaspoon, level it with a knife or a flat object (see Figure 2). Add 1 level spoonful of salt to the water and mix the water.

Figure 2: Measuring salt and sugar



3. Taste the salt and water. It should not be very salty. If it tastes more salty than tears, pour away this mixture and make it again with less salt.

4. Take 8 level teaspoonfuls of sugar. Put these in the water and mix the water.

TREAT CHILD WITH DIARRHOEA.

Treatment of children with signs of dehydration will involve using a solution made with oral rehydration salts (ORS). Preparation of ORS solution is a skill that all health workers should have.

HOW TO PREPARE ORAL REHYDRATION SOLUTION.

ORS often comes in packets which should contain the following ingredients:

Ingredients	Amount
Glucose (a form of sugar)	20.0 grams
Sodium Chloride-NaCl (ordinary salt)	3.5 grams
Sodium Bicarbonate-NaHCO ₃ (baking soda)	2.5 grams
Potassium Chloride-KCl	1.5 grams

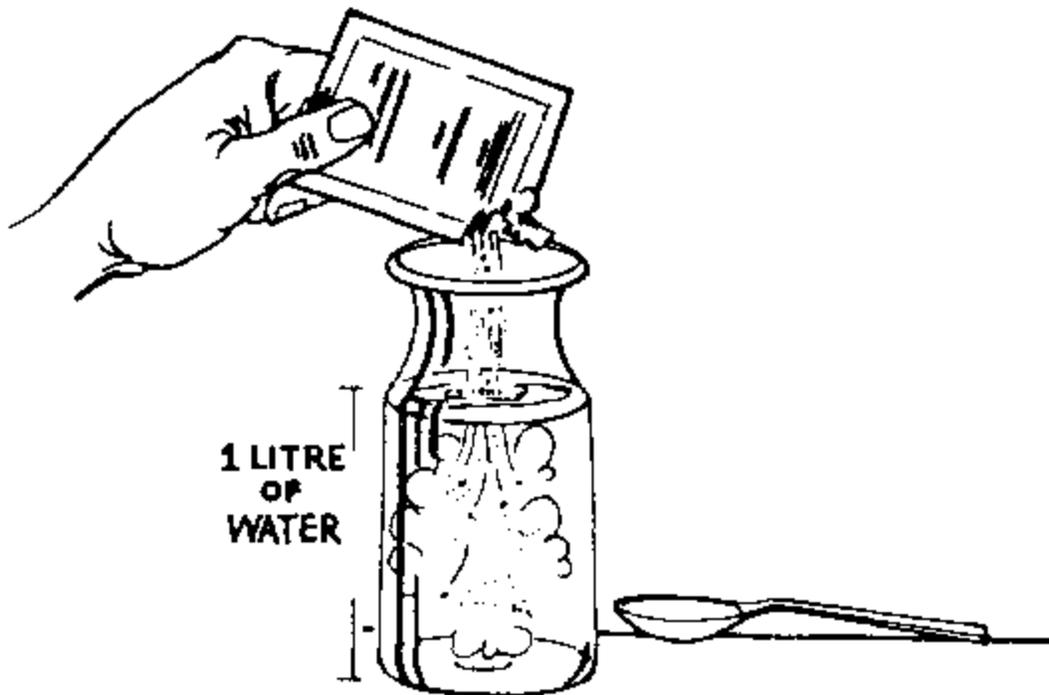
Packets that contain the ingredients in these amounts are made for mixing in one litre of drinking water. This mixture is called ORS SOLUTION. NOTE: Some packets of ORS are made for smaller volumes of water; they have smaller amounts of the same ingredients. When ORS

packets are not available, oral rehydration solution can be made using the instructions in Annex 3.

To Prepare ORS solution, perform the following steps:

- Wash your hands.
- Measure 1 litre (or correct amount for packet used) of clean drinking water into a clean container. It is best to boil and cool the water, but if this is not possible, use the cleanest water available. Use whatever container is available such as a jar, pot, or bottle.
- Pour all the powder from one packet into the water and mix well until powder is completely dissolved,
- Taste the solution so you know what it tastes like.

Prepare ORS solution



Fresh ORS solution should be mixed each day in a clean container. The container should be kept covered. Any solution remaining from the day before should be thrown away.

EXAMPLE: Watch the course facilitator prepare the ORS solution according to the steps above.

Session 41, Trainer Attachment 41C: Suggestions for a lecturette on the hows and whys of ORS

RESOURCES:

- Oral Rehydration Therapy (ORT) For Childhood Diarrhea (ORT Resource Packet. pp. 4344.

- Trainer Attachment 41F (Oral Rehydration Therapy: The Scientific and Technical Basis)

IMPORTANT INFORMATION:

1. Diarrhea upsets the body's chemical balance and its ability to process and absorb water and nutrients.

When the child is healthy, the lining of his or her intestines transforms food into a form that can be absorbed and transported by the blood stream to all parts of the body. These nutrients provide energy and enable growth. The blood stream is also the source of the minerals and water needed by the intestine to transform the food into a useable form. The intestine "borrows" and returns water and minerals as it processes food. This chemical balance is upset during diarrhea.

Diarrheal diseases affect the functions of the intestines. During diarrhea, the small intestine loses its ability to absorb water and essential minerals called electrolytes (sodium chloride, potassium, and bicarbonate). Minerals and water needed to process food leave the body in the child's stools, depleting the body's store of these vital elements and the nutrients they help process.

2. Water and electrolyte Loss cause the physical signs and symptoms recorded on the WHO Treatment Chart.

Fluid and mineral loss of greater than five percent, but less than ten percent of body weight generally causes a weak rapid pulse, loss of skin elasticity, low blood pressure, severe thirst, and other signs noted in Column B of the WHO Diarrhea Treatment Chart.

A loss of more than ten percent of the body weight results in shock, stupor, disrupted kidney function, acids build up in the blood (acidosis), peripheral blood vessels collapse, and death follows (see Treatment Plan C on the WHO chart).

3. Infants and small children are more susceptible to dehydration from diarrhea.

Infants and young children are particularly susceptible to dehydration from diarrhea, because of their small body weight. For example, if a child who weighs ten kilograms loses one kilogram of water, he or she has lost ten percent of its body weight and is severely dehydrated.

4. Oral Rehydration Salts (ORS) restore the body's chemical balance, and replaces the water lost.

Oral Rehydration with ORS (Oral Rehydration Salts) replaces the blood's electrolytes nearly as quickly as they are lost in the stool. This is due in large measure to the special ability of glucose to increase the absorption rate of sodium through the intestinal lining.

ORS includes all the essential electrolytes. Sugar-salt solution only has one of the three. This is why it is necessary to give ORS to a mildly dehydrated child.

Summarized below is the formula for the new trisodium citrate ORS.

ORAL REHYDRATION SALTS (ORS) FORMULATION CONTAINING TRISODIUM CITRATE

1. In 1982-1983 the WHO Diarrhoeal Diseases Control (CDD) Programme supported laboratory studies to identify a more stable ORS composition, particularly for use tropical countries, where ORS has to be packed and stored under climatic conditions of high humidity and temperature.

The results of these studies demonstrated that ORS containing 2.9 grams of trisodium citrate dihydrate in place of 2.5 grams of sodium bicarbonate (sodium hydrogen carbonate) was the best of the formulations evaluated. The formulae of the standard ORS (ORS-bicarbonate) and ORS containing trisodium citrate dihydrate (ORS-citrate) are shown below:

ORS-bicarbonate	grams/litre	ORS-citrate	grams/litre
Sodium chloride	3.5	Sodium chloride	3.5
Sodium bicarbonate (sodium hydrogen carbonate)	2.5	Trisodium citrate hydrate	2.9
Potassium chloride	1.5	Potassium chloride	1.5
Glucose anhydrous	20.0	Glucose anhydrous	20.0

SUMMARIZE by stating that Oral Rehydration therapy is used to:

- Replace fluids
- Restore the chemical balance of the body.

ANALOGIES THAT HELP LEARNERS UNDERSTAND THESE CONCEPTS:

To give participants a more concrete sense of what it means to lose chemical balance, ask someone to stand on one foot and hold objects of equal weight in each hand. Then ask them to remain on one foot but hold both objects in one hand. Ask them to tell the others how that feels to go from a balanced to an unbalanced situation. How well can they function in this state? This can provide the basis for discussion.

To convey the idea that children are particularly vulnerable to dehydration from diarrhea, put the same amount of water in a large cup and in a small cup. Ask participants to compare the cups. Use this as a basis for discussion.

Session 41, Trainer Attachment 41D: Using models to show why rehydration is important

Below are two examples of simple ways to present the idea of rehydration. See Helping Health Workers Learn, Chapter 24 for additional ideas.

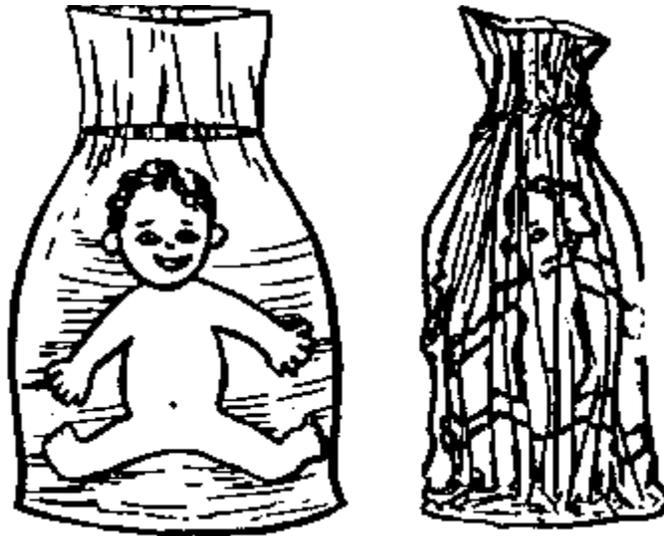
Plastic Bag Model

Take a clear plastic bag with no tear or hole in it. With a felt-tip pen (the kind with waterproof ink) draw a picture of a baby on it. Fill the bag with water; the picture of the baby will be full and well-rounded, like a healthy child. Now make a small hole in the lower part of the bag with a pin. As water flows out, the bag and the picture will become wrinkled. This shows what happens to a child who has diarrhoea and becomes dehydrated.

Ask a trainee to pour water into the bag faster than it is flowing out of the hole. This shows what happens with oral rehydration; the picture of the baby will become normal again. Now seal the

hole with a piece of tape or sticking plaster so that the water stops flowing out. This shows that the diarrhoea has stopped and no more rehydration is needed.

Plastic bag model to demonstrate dehydration

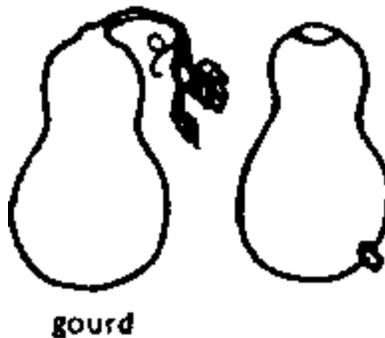


Gourd Baby

To learn about dehydration, the children can conduct their own experiment by making a 'gourd baby' like this one:

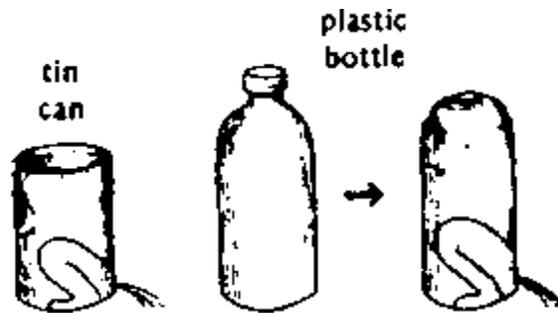
1. Cut off the top, like this.

Make a small hole with a plug



If you do not have gourds, a plastic bottle or tin can will do.

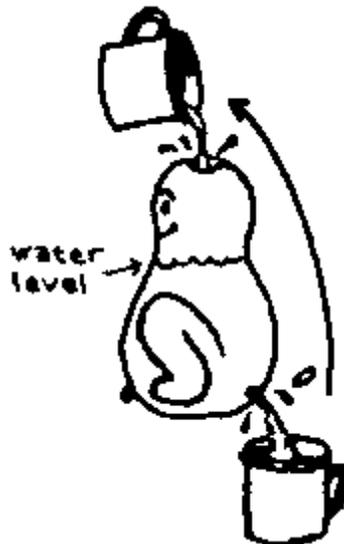
Tin can and plastic bottle



How can dehydration from diarrhea be prevented?

The children can find answer by playing a game with the gourd baby. They pull the plug, then try to put back as much water as the baby is losing, like this:

They learn that, as long as all the lost water is replaced, the water level will never go down and the baby will not become dehydrated.



A child with diarrhea needs to drink at least 1 glass of liquid each time he has a watery stool.

Giving lots of liquid to a baby with diarrhea may at first increase the amount of diarrhea. But this is all right. Usually the diarrhea will soon get better. The important thing is to be sure that the child drinks as much liquid as he loses.

(From: Helping Health Workers Learn. Ch. 24 pp. 18-20. And WHO Guidelines for Training Community Health Workers in Nutrition, p. 111.)

Session 41, Trainer Attachment 41E: Five steps of diarrhea and its management

Summary. About one of every 10 children born in developing countries dies of diarrhea before reaching the age of 5. Oral rehydration therapy (ORT) can substantially reduce this heavy toll. ORT means drinking a solution of water, sugar, and mineral salts to replace the water and salts

lost by the body during diarrhea. This counteracts dehydration, which is the direct cause of diarrhea deaths. Making this simple, inexpensive, and effective treatment available throughout the world is a major public health challenge.

The scientific rationale for oral rehydration is firmly established. During diarrhea the body rapidly loses fluids and the electrolytes sodium, potassium, chloride, and bicarbonate, while at the same time the ability of the intestines to absorb fluids and electrolytes, in the form of salts, taken by mouth is impaired. About 10 percent of diarrhea episodes lead to dehydration and, if untreated, one or two percent become life-threatening. When the body becomes dehydrated, the only effective treatment is rehydration - replacing, either intravenously or orally, approximately the same volume of water and electrolytes lost.

New WHO Complete Formula

The formulation for oral rehydration (OR) solution now recommended by the World Health Organization (WHO) contains the following ingredients:

sodium chloride	3.5 grams
trisodium citrate dihydrate	2.9 grams
potassium chloride	1.5 grams
glucose	20 grams
water	1.0 liter

This is a new formula, announced in 1984. It will soon be used in the packets labeled Oral Rehydration Salts (ORS) that are distributed internationally by the United Nations Children's Fund (UNICEF). Previously the WHO formula used sodium bicarbonate (2.5 grams) rather than trisodium citrate. Studies show that the new formula has a longer shelf-life and reduces stool volume by as much as 46 percent. Reduced stool volume will encourage more extensive use of ORT. Packets made with the old formula are still good, however, and should be used up.

The WHO complete formula is widely regarded as the physiologically most appropriate single formulation for worldwide use. Although some pediatricians have argued that it contains too much sodium for infants, public health practitioners point out that continued breast-feeding or drinking other fluids in addition to OR solution minimizes this risk.

The major issue today is not the composition of the ORS packets but rather the provision of necessary services and essential supplies to all who require them. To provide the needed six packets per child under age 5 per year to all developing countries except the People's Republic of China would require 2,400 million packets annually. UNICEF is currently producing about 75 million packets, and the number is growing rapidly. Still, the amount is far from meeting the worldwide need. A number of commercial firms and national governments assisted by UNICEF are producing packets locally and more plants are being set up, but providing a continuous supply of prepackaged salts is an important constraint for national programs.

Another problem is cost. At the lowest competitive price, UNICEF currently pays about 4¢ (US) per packet. Even at this low price, however, health ministries in most developing countries cannot afford prepackaged ORS supplies for every family. For many developing countries, the cost of providing six packets of ORS per child a year would amount to 5 to 20 percent of the total health budget.

Homemade Sugar and Salt Solutions

One answer to the twin problems of cost and distribution is to encourage home preparation of an OR solution consisting of only sugar and table salt. Since sugar and salt are available in most households and since potassium and trisodium citrate or sodium bicarbonate may not be essential in the early stages of diarrhea, a number of programs are using home-mixed solutions. Meanwhile, researchers are investigating whether rice powder could be substituted for the sugar to speed reabsorption and provide nutrients. Using rice water is also under study.

This approach raises two concerns: First, will the solutions be accurately mixed? If too much salt is used, the solution may be dangerous. If too little salt, it may be ineffective. (The same problem, although less severe, arises with packets.) Experience in Indonesia and Bangladesh as well as a pilot study in the Philippines suggest that people need careful, repeated, face-to-face instruction to mix solutions correctly. Second, will sugar and salt solutions be effective? The absence of potassium and trisodium citrate or bicarbonate may limit effectiveness in severe cases of dehydration. In mild cases where intestinal absorption is not impaired, it is possible that almost any fluid would prevent dehydration. More research is needed to determine whether, in mild cases, complete-formula or sugar and salt solutions prevent dehydration better than other available fluids such as rice water, green coconut water, or soup.

The Five Steps of Diarrhea and Its Management

Step 1. Dehydration. The person with diarrhea is like a pot of salt water with a hole in its bottom. A dead patient is like an empty pot. It is most important to keep the pot full.

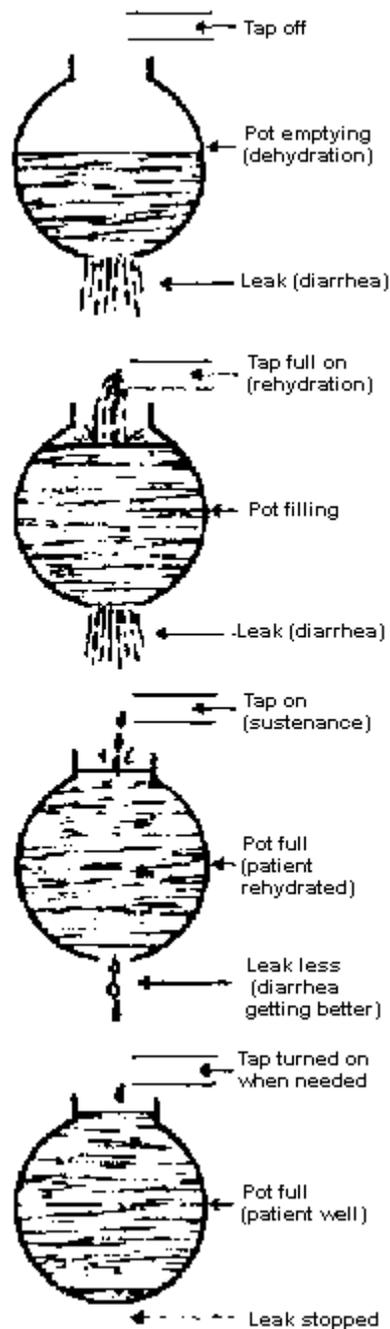
Step 2. Rehydration of the patient with salt and water is like filling the pot. It must be done quickly, within six hours or less.

Step 3. Sustenance of the patient is like keeping the pot full with salt water while the leak continues, and at the same time making the patient stronger by feeding him with the proper food.

Step 4. Cure of the patient is when the leak stops and the pot is full.

Step 5. Prevention is trying to stop the beginning of further leaks by keeping people strong and healthy; but if a leak starts again, prevention is by giving salt water and food before the "pot starts to empty" (i.e., before the patient dehydrates).

The five steps of diarrhea and its management



Source: WHO (225)

Continued Feeding

Malnutrition is an important element of diarrhea. Many children in developing countries are malnourished. Frequent episodes of diarrhea contribute to malnutrition because appetite diminishes, feeding is interrupted, and absorption of nutrients is reduced. Malnourished children

then become more vulnerable to infections, creating the potential for a vicious cycle of malnutrition and infection.

ORT programs emphasize continued feeding during diarrhea. Even though some families, folk practitioners, and Western-trained physicians have traditionally recommended withholding food during diarrhea, the consensus today is that breast-feeding should not be interrupted at all during diarrhea. For a child who has been weaned, feeding should be interrupted only briefly; liquids with low lactose content such as dilute formula or other usual fluids and foods should be resumed as soon as the child will take them. Although the volume of diarrhea may be greater with feeding, the volume of food absorbed is also greater when feeding is maintained, and the amount of weight loss is less.

ORT programs discourage the use of antibiotics and other drugs because they are ineffective against the causes of most childhood diarrhea and they are sometimes harmful. Neomycin, for example, can make diarrhea worse. Vaccines against a few organisms are under development.

Community-Based Programs

In the long run only sanitation, clean water and food, better nutrition, and improved living conditions can reduce the incidence of diarrhea among infants and children. But in the short run the scientific knowledge and the practical technology embodied in ORT already exist to prevent most deaths from diarrhea. Can health programs meet the challenge of making ORT available all over the world?

The scope of the task requires careful planning, with specific objective, reliable logistics, community-wide training, well-designed information programs, and close monitoring and supervision of a multitiered treatment system. While coordination must extend from headquarters all the way down to the village, treatment of severe cases should proceed from the home, to the village or peripheral health worker, to the health center, to the hospital.

On one hand, the full understanding and cooperation of the medical community is necessary to provide back-up and referral for the most severe cases. This may require refresher courses and seminars because the rationale for oral rehydration was developed after many physicians now practicing went to medical school. On the other hand, in order to reach the millions of mothers who actually care for children with diarrhea, community-based programs that do not depend on doctors and clinic facilities are essential. That means every family in every village should have supplies available and be carefully taught and encouraged to use them.

ORT programs have a number of features in common with community-based family planning: they both seek to reach women of reproductive age; they both teach new techniques to be used in the home, not the clinic; and they both depend on continued usage for measurable success. Several efforts have been made to link ORT distribution systems with community-based family planning programs - for example, in Bangladesh, Egypt, Guatemala, and Sudan. Both ORT and family planning should be integral parts of maternal and child health (MCH) programs.

(From: Population Reports. Series Number 2, Revised July-August 1984.)

Session 41, Trainer Attachment 41F: Oral rehydration therapy: the scientific and technical basis

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When a child has diarrhea it loses body fluids - mainly essential minerals and water - and becomes dehydrated. So mix up some salts and sugar in water, and feed the solution to the child, as much as he/she will take until the child is no longer dehydrated, and diarrhea has slowed down or stopped. Make sure the child continues to take food or breast milk.

This is oral rehydration therapy, and it seems so simple (compared, say, to manipulation of genes or artificial hearts) that one may wonder what science has had to do with ORT, or why we need continue scientific studies on ORT. Many older physicians, nurses, or mothers have protested, "This is nothing new, we have been practicing ORT for years" Some of the great clinicians wrote about ORT thirty to forty years ago - Darrow, Harrison, Chatterjee. But this is precisely the point: they wrote about using ORT, but did not know how ORT works (nor, to be fair, could they have then), and so there was no further development or spread of their anecdotal experience until some decades later. Even today, when we fail to understand and use the scientific approach, we continue erroneous or wasteful methods of therapy; actually, this is the case in all fields of medicine and public health.

Not everyone who practices ORT must be a scientist, but the spirit of inquiry and joy of discovery which suffuses science may be shared by all. The spirit of inquiry is present in five stages:

1. *Observation* - using all one's senses to capture events and think about them: it was noticed that children with dehydration drank the oral rehydration solution vigorously and greedily and, when nearly hydrated, slowed down and often went to sleep.
2. *Measurement* - taking one's observations and gauging some values on scales of time, length, amount, and degree: children who drank oral rehydration solution at will tended to drink close to what their initial deficit was, as measured by intake, output, and change in body weight.
3. *Creative hypotheses* - thinking through the implications of a measured observation and asking interesting questions: who can choose more closely the correct amount of fluid for rehydration, the dehydrated child or the physician?
4. *Testing, experimenting* - within the ethical boundaries of conduct, designing, with proper statistical force and safeguards against bias, a test of the hypothesis: in certain situations, children freely drinking oral rehydration solution became hydrated faster and reached better fluid and mineral balance than those on intravenous solutions controlled by physicians.
5. *Application* - using the results of scientific testing for the widest possible benefit. It is as Jon Rohde and Robert Northrup have written, "taking science where the diarrhea is" Human information must be shared across all political and other boundaries.

The data and information I will present in this paper have gone through several of these five stages of scientific inquiry.

ORT developed from two streams of inquiry, if I may use a liquid metaphor. The first established what dehydration actually meant, how it related to the clinical picture of the dying child, and what was needed to reverse the situation. Believe it or not, this line of inquiry has taken nearly eighty years to come to satisfactory resolution. The second line, still ongoing, is the discovery of how the intestinal tract handles the movement of salts, nutrients, and water between the body and the outside world.

The picture of the dying child is hauntingly familiar. The baby has lost about 10% of its weight in Quid. This amounts to one liter of Quid in a ten-kilogram child, or about a quart in a twenty-two pound baby. Now the child has hollow, sunken eyes; its pulse is feeble or absent; its breathing is deep and rapid; the skin, when pinched, tends to remain dented and inelastic; the abdomen may be distended; urine has ceased to flow; the mouth is parched; the eyelids do not quite shut properly; there are no tears. Dry as the child may be, vomiting and watery diarrhea persist nearly to the end, and this stage may be reached in as little as ten to twenty hours after onset of illness.

Virtually all these signs are due to loss of salt, water, potassium, and sodium bicarbonate, all essential ingredients for life. Most of the loss is in the watery stool, and some, especially in the case of potassium, is from the urine. Regardless of the cause of diarrhea (rotavirus, cholera, E. coli, etc.) or whether in Baltimore or in Bengal, once the child reaches these clinical signs the amount of loss of water and minerals is roughly the same (Table 1). This is fortunate in a way, because the replacement therapy may be uniform and does not require us to know which specific microbe is doing the mischief. Incidentally, while the loss of potassium is of the same magnitude as that of sodium, the body stores of potassium are several times larger. So replacement of sodium is more urgent and also helps conserve potassium.

Although the extreme case I have portrayed is present in 1% to 2% of all bouts of diarrhea, it is sobering to realize that with very few visible signs of dehydration beyond thirst, the child may have already lost 5% of body weight, halfway to death, in as little as five to ten hours. By the time parents become alarmed, there may be only a few hours left in which to find competent help. The majority of children who die, however do linger for two to three days: they have received some fluid, probably of dubious value, by mouth or intravenously; the diarrhea may have slowed a little if various medicines are tried. But by this time the parents may have exhausted their money or the skills and resources of the local practitioner, and the nearest hospital is miles away. The child needs fluid therapy: effective, affordable, trustworthy, nearby.

But we learned about ORT only after we knew how to apply intravenous therapy. Beginning in the mid-1940s, diarrhea research centers in Dhaka, Calcutta, Manila, Cairo, Baltimore, and Taipei proved that intravenous solutions containing sodium chloride, potassium chloride, sodium bicarbonate (or lactate or acetate) in a well-determined combination could be given rapidly so that severely dehydrated children could, Lazarus-like, be resuscitated within two to four hours. Lives are saved by the use of a polyvalent solution, administered quickly with the correct proportion of ingredients. ORT is successful foremost because of this principle, first discovered for intravenous therapy. And we must still rely on intravenous fluids if the child is so severely dehydrated that it cannot drink at all. With this principal exception, what then makes ORT preferable to the intravenous route?

- It can be given by persons with little formal education, even in the home.
- It needs no sterile equipment.

- It is inexpensive (a boon, incidentally, even to well-equipped hospitals).
- It is safer and, under most circumstances, more effective.
- In a pinch, a less-effective formula can be prepared at home from table salt and table sugar (sucrose)
- It allows parents to participate in the care of their children.
- It is comforting to the child and to the parents.

Let us now consider the second stream of inquiry that led to the development of ORT: how the intestine handles salts and water.

"What a piece of work is man," given form by skeleton, powered by muscles, coordinated and programmed by a chemical-electric skein of nerves and brain, nourished and defended by a red liquid distantly related to the primordial sea.

The intestine is but a hollow tube connected to the outside world at both ends, the core around which the rest of the body is wrapped. The intestine does many things, but its prime job is to take food, break it into basic molecules that are usable by the body's cells, and transport these molecules across the one-cell-thick lining that separates inside from out. To digest food, it seems necessary to increase the surface area of the tube by multiple folds on the surface of the tube and by fingerlike projections from these folds, called "villi," which carry multiple digestive enzymes at or near their surface. If the surface area is much reduced, as occurs in the disease called "sprue," key nutrients and vitamins are not absorbed. It also seems necessary to suspend the particles in liquid and let digestive enzymes do their chemical work. The ultimate source of the digestive liquid is the blood stream, from which the intestine abstracts and secretes salty water, free of blood or serum. Secretion of salts and water seems largely to be the function of the youngest cells in the lining, called the crypt cells, and is controlled by a marvelously organized sequence of enzymes, minerals, and small chemical messengers which "know" just when to turn the flow on and off. Infectious agents which cause diarrhea are able to turn the cell mechanisms for secretion to a fixed "on" state until new cells replace the infected ones, usually in two to four days, or until the microbes and toxins are cleared out by the defense mechanisms of the body.

It has been estimated that the intestine of a healthy adult secretes one hundred liters - 26.4 U.S. gallons - or more of fluid each day; amazing, of course, but, given the total surface area of two million square centimeters (the size of a ballroom carpet seventy by thirty feet), one hundred liters represents but one drop per square centimeter per day. Since the well nourished adult body contains only forty-five liters of fluid altogether and the adult would die if just seven to ten liters were permanently lost, there must be a rapid, certain mechanism to put the digestive fluid back into the bloodstream nearly as quickly as it is secreted. In what is surely one of the neater bits of engineering, the very molecules produced by the liquid digestion are the ones that help transport the salts and water back across the intestinal cell, from there to return to the inner pools of body fluid. The molecules that work this way are principally glucose, the simple sugar derived from starch or table sugar; galactose, a component of milk-sugar; and amino acids and peptides, the products of protein digestion. Each of these molecules combines with sodium, probably in close to a one-to-one ratio, and these dyads cross the cell membrane, perhaps by linking in a menage-a-trots to carrier protein molecules anchored in the membrane.

Water is pulled along by osmosis, and other minerals (potassium, bicarbonate, more sodium) follow along, caught up in the stream, as it were. Most of this absorption appears to take place in the upper, more exposed regions of the villi, so that if there is extensive damage to villi from, say, viral diarrhea, oral rehydration may fail: failure occurs in about 5% to 10% of seriously ill children.

What is rather elegant about this system is that glucose, amino acids, and peptides seem to enter the cell linked to sodium, but each class of molecules joins with different carrier molecules or finds separate entrances specific to each. One predicts that if one adds an amino acid - glycine, say - to glucose in an oral rehydration solution, more fluid will be absorbed than if glucose or glycine are used alone. This is just what happens, and, as you shall hear shortly, this phenomenon promises a major advance in oral rehydration therapy. But for the moment, let us leave the alimentary canal and return to the child.

The formula for the oral rehydration solution was originally devised to combat epidemic outbreaks of cholera in which both adults and children are affected and where lifesaving intravenous fluids are scarce. The salts are packed in flat aluminum foil packets, paid for and stockpiled by UNICEF ready for shipment to any country on demand. The formula, often referred to as the "WHO formula," was originally devised as a compromise between what adults needed and children could tolerate. The composition, however, is more inspired than that suggests. The amount of salt is sufficient to replace sodium and water losses in severe dehydration (Table 1), although adults may need to drink extra amounts. Glucose at 2% is optimal, as many studies suggest that water is best absorbed when glucose and sodium are in the ratio of one-to-one, and glucose does not exceed a concentration of 2 1/2 %. Potassium deficit is only partially met by this formula because it is unsafe to completely replace losses so fast, but initial replacement must be started quickly (some suggest increasing the replacement rate). Acidosis is corrected much faster with bicarbonate than without. This formula has proved surprisingly versatile in the treatment of hundreds of thousands of children and adults, with documented success in 85% to 95% of cases, under the following range of situations:

- in persons who are able to drink;
- in malnourished children and the well nourished;
- in bacterial and viral causes of dehydrating diarrhea;
- with serum sodium levels as low as 110 milliequivalents per liter to as high as 165 extremes immediately threatening to life;
- with severe derangement of the blood alkaline-acid balance to the acid side (a condition called acidosis);
- in tropical climates and Baltimore winters;
- with no visible dehydration up to loss of body fluid equivalent to 10% of body weight.
- with voluminous, continuing loss of diarrhea, up to 10 milliliters per kilogram body weight per hour.

Even vomiting does not bar success except in a few instances; in fact, vomiting decreases in direct proportion to the degree of rehydration with ORT. What makes ORT so versatile, in

addition to its balanced formula, is that most children drink as much oral rehydration solution as is offered up to nearly the amount of which they are deficient. When they are hydrated, or nearly so, they seem to lose their taste for the fluid; then they either fall asleep, or cry for food.

Crying for food: we must think of ORT as more than simply rehydration with a solution of salts and sugar. ORT also means restoration, quickly, of a normal diet. It is now well established that a principal cause of malnutrition in children of the Third World is repeated episodes of diarrhea. The reasons are several and interactive:

- children lose their appetite for food because of salt and water loss and acidosis;
- children are often made to fast when they have diarrhea, sometimes for several days, because it is feared that food makes diarrhea worse;
- potassium loss may make muscle tone too weak for eating and digestion;
- when a child is ill, anxiety and restlessness burn up calories from the child's own stores of fat and protein (which may be already seriously depleted);
- diarrhea and fasting independently damage digestive enzymes in the intestinal tract, leading to small absorption and loss of food that is eaten.
- with each serious bout of diarrhea, a child loses weight and may never catch up to its potential for growth and good nutrition.

In well-designed studies in the Philippines, Iran, Turkey, India and Panama, ORT appeared to protect against acute weight loss with an episode of diarrhea when the parent was also encouraged to continue to feed the child despite the diarrhea. Breast milk, soft foods and porridges, even fish and fruit and breads were advised. ORT restores a child's appetite within a few hours, so suddenly this advice made sense to parents. The protective effect was most apparent in those already undernourished, and in those with repeated episodes of diarrhea, and protection seemed to last several months. But, of course no food, no protection.

We do not know exactly how ORT works to protect nutrition, but we observe regularly that rapid restoration of fluid and mineral balance restores appetite. Potassium may play a key role here; there is also an intriguing possibility, based on studies of adults who go without food, that the glucose in ORT may help restore or protect intestinal digestive enzymes. The parent certainly finds feeding the child more acceptable, and the child becomes more settled.

Oral rehydration therapy is, thus, two therapies: rehydration and continued feeding. ORT has already been proved to reduce mortality from diarrhea. It would be an amazing achievement if ORT could also reduce the prevalence of malnutrition.

This hope leads me to consider an impending development in ORT. Often, parents' and physicians' prime concern is to stop the diarrhea, and until they see otherwise, they do not believe that rehydration is the first order of business. ORT does not stop diarrhea, which generally runs its own course of a few days; we spend a lot of effort getting that point across. Perhaps we soon will have the means to slow stool loss even while rehydrating the child.

You will recall, back in the alimentary canal, that the different breakdown products, or metabolites, of digestion (sugars, peptides, amino acids) linked up to sodium and promoted salt and water absorption through different gates in the intestinal cell membrane. There is now

sufficient evidence that if we combine these metabolites in a single oral solution, we not only rehydrate but can actually decrease the total loss of stool. Peptides and amino acids are particularly necessary in the combination because they act on absorption all along the small intestine, whereas the action of glucose is more confined to the upper portion. Absorption of peptides and amino acids are also far less susceptible than glucose to damage by diarrhea. So the next step is to develop an enriched ORT, one that combines salt, potassium, bicarbonate, glucose or a simple starch, and peptides or a simple protein.

Here are some expected advantages of such a formula.

- Diarrhea is lessened.
- With less diarrhea, there will be less waste of nutrients in regular food, and possible more protection of intestinal enzymes
- Common local foods, already familiar to parents, may be adapted to form an enriched ORT.

Early studies with such a formula are encouraging. We look forward now to a burst of research to define its optimal composition, the range of severity of illness it can be used for, its advantages over the WHO solution and food given separately, its cost and distribution. We will need to consider, also, how we can enlist parents to prepare and use an enriched ORT at home.

Where does all this take us? From a global public health view, it is possible that ORT is nothing more than a palliative until research produces effective antidiarrheal vaccines. Now sadly, for many children, ORT merely postpones death. Optimists among us hope ORT programs will enable people to trust other health services, such as family planning, to encourage better nutrition and hygienic practices, to improve the health worker's morale, and to help achieve "Health for All."

We hope these hopes prove true, they need testing. But little can be advanced, I believe, as long as nations fail to make human welfare the first priority.

This brings me full circle to the beginning of this paper.

The international agencies sponsoring this conference have done a lot for our children. They support research; they supply services and technicians; through a generous network of information they link scientists from Boston to community health workers in Bangladesh; but most of all they demonstrate that the global village exists: in helping our neighbor's child survive we establish our common humanity.

Table 1. AVERAGE WATER AND SALT LOSSES IN SEVERE DIARRHEA OF A 10KILOGRAM CHILD BEFORE TREATMENT (milliequivalents)

	Water	Sodium	Potassium	Chloride
Infant diarrhea (Baltimore)	1.1L	90	100	80
Child cholera (Calcutta)	1.0L	120	70	100

(From: ICORT Proceedings, pp. 19-23)

Session 41, Trainer Attachment 41G: Storing and maintaining supplies of oral rehydration salts (ORS)

Whether a country is producing ORS locally or using UNICEF sachets, the product must be properly stored so that it remains effective from the time it is delivered to the central store to the moment it is used. Sodium bicarbonate causes decomposition of glucose in oral rehydration salt mixtures. High temperatures and humidity may accelerate this process and manufacturers must consider these factors when preparing and packing ORS.

Storage

- Temperatures in buildings where ORS is stored should not exceed 30°C. Above this temperature the ORS may melt or turn brown. If this happens, it may be very difficult to dissolve and should not be used. If, however, it has only turned yellow, as long as it can be properly dissolved, it is still safe to use and effective.
- Supplies of ORS should not be stored in buildings with galvanized roofs directly exposed to the sun without adequate ventilation. These rooms get very hot.
- Humidity in stores should not exceed 80 per cent. In higher humidity the ORS is likely to cake or turn solid. Increase ventilation and avoid standing water in or near storage rooms.
- As far as possible, storage areas should be cleared of insects and rodents.
- Packets should be packed so they are protected from puncturing by sharp objects.
- UNICEF recommend storing their ORS sachets in stacks of cartons approximately 1 to 1 1/2 metres high.
- A rotating system should be introduced so that the oldest ORS (identified by date and batch number) is used first. When in a hurry, avoid distributing the packets which are at the front or the top unless you are sure they are the oldest in the store.
- Regional storage areas should be located in places that will be convenient for subsequent distribution.

Regular inspection of packets

- Laminated foil ORS packets have an estimated shelf life of at least three years. Note the production date on the label. Packets of ORS must be checked regularly (every three months) to see if the quality is still acceptable. Open at least one packet in each batch to see if the ORS is usable. Locally produced packets of ORS are often packaged in plastic and will probably have a shorter shelf life. It is especially important to check them regularly.
- Check ORS packets in any boxes that appear to be damaged. Open at least one packet from the top, middle and bottom of the box to see if the ORS is still usable.

Keeping records at each point where ORS is received and delivered.

- Records should show:

- the quantity, batch number of letter, and date received.
- the quantity and date issued (i.e. sent from one point in the distribution system to another).
- the amount currently in stock.
- stock level at which a new supply should be requested.
- Records should also indicate any problems (such as spoilage due to a leaking warehouse).
- Supplies should be counted every three months and results compared with quantities shown in the records.
- The evaluation of stock is an important factor in determining future quantities of ORS required.

If you are interested in further information on local production of ORS and quality control, the following publications are available from the Programme Manager, CDD Programme, World Health Organization, 1211 Geneva 27, Switzerland.

- *Guidelines for the production of oral rehydration salts.*
- *Good practices for the manufacture and quality control of drugs.*

(From: Diarrhoea Dialogue, Issue 8, February 1982, pp. 6)

Cautious prescription

Professor Harold Lambert explains the clinical situations which justify the use of drugs in addition to oral rehydration therapy.

Two main groups of drugs are commonly prescribed in the treatment of diarrhoeal diseases:

- Antimicrobial drugs - which kill the responsible organism and so lessen the illness.
- Antidiarrhoeal drugs - which diminish the amount of fluid loss by various pharmacological mechanisms.

These two types of drugs are often combined and many preparations are marketed containing both antibiotics and antidiarrhoeal drugs. These combination drugs should never be used.

Only single drugs should be given and only where appropriate.

Antibiotics should only be used:

- When there is clear clinical suggestion of invasive diarrhoeas (bloody stools and high fever) or cholera (in a cholera-endemic area).
- Or when laboratory results become available and indicate the need for antibiotic treatment.

Antibiotics in bowel infections

For certain specific infections of the gut an appropriate antimicrobial drug is an important part of the treatment

Shigella Infection: In mild, transient diarrhoea caused by shigella, antibiotic treatment may be unnecessary as, for example, in mild Sonne or flexneri dysentery. Antibiotics are, however, an

essential part of the treatment of severe bacillary dysentery, especially in infants with persistent high fever. Choice is difficult because transferable drug resistance has become very common in these organisms and local knowledge of their drug susceptibility has to be taken into account. Ampicillin or co-trimoxazole are usually suitable (ampicillin 100 mg/kg/day in four divided doses for five days, or trimethoprim 10 mg and sulfamethoxazole 50 mg/kg/day in two divided doses for five days). Single dose treatment in adults with tetracycline (2.5g) is also very effective if the bacilli are known to be susceptible to this drug,

Campylobacter infection: *Campylobacter jejuni* may invade the bowel wall causing abdominal pain and mildly dysenteric stools. Most cases recover well without chemotherapy. Severe cases may be treated with erythromycin (40 mg/kg/day in three divided doses for five days) but its efficacy is unproved. A recent controlled trial showed no clinical benefit from erythromycin but treatment was not started until an average of six days from the onset of illness⁽¹⁾.

Cholera: Several antibiotics, particularly tetracycline, have been shown to shorten the duration of the disease and are therefore useful in the management of cholera patients. Tetracycline is given as 50 mg/kg/day in four divided doses for three days. Drug resistance is now being seen in areas where mass chemoprophylaxis has been carried out. Alternative drugs include furazolidine and chloramphenicol.

Enterotoxigenic and enteropathogenic E. coli: Relatively few clinical trials have been done on the effect of antibiotics in this group of bowel infections. Enterotoxigenic *E. coli* generally cause acute episodes of relatively brief duration, making antibiotics unnecessary. Because of the difficulty in identifying these organisms, there seems to be little justification at the moment for treating them with antibiotics. Similarly, for enteropathogenic *E. coli*, there is no clear evidence that antibiotics are beneficial.

Salmonella infections: For the vast majority of acute diarrhoeal illnesses caused by non-typhoid Salmonella strains, antibiotics do not change the course of illness and may actually prolong the period during which stool cultures remain positive. Salmonella septicaemia, which may present in childhood as combination of diarrhoea with systemic illness and fever, requires antibiotic treatment. Ampicillin, chloramphenicol or co-trimoxazole may be used, depending on the sensitivity of the organism.

Amoebiasis and Giardiasis: Both these parasitic infections respond to several antimicrobial agents. Metronidazole is the first choice for either.

Antibiotics in bowel infections of unknown cause

The cause of many bowel infections is never identified or the organism may be found after the acute illness is over. Antibiotics have no role in the treatment of the large group of viral diarrhoeas. It has sometimes been suggested that antibiotics should routinely be prescribed in case the illness turns out to be due to an infection for which antibiotic treatment is indicated.

This practice is to be avoided for several reasons:

- The giving of antibiotics may divert the attention of mother and nurse from the essential task of replacing water and electrolytes

- The widespread use of antimicrobials promotes the selection of antibiotic resistant strains and thus lessens the likelihood that the drugs will later be effective for those few patients who need them
- Antibiotics are expensive

The balance of factors therefore clearly lies against the blind use of antibiotics in diarrhoeal disease of unknown origin.

Other drugs in gastroenteritis

The most commonly used agents are kaolin and pectin in one or other of many available preparations, despite clinical trials proving lack of efficacy. Most children improve so quickly with fluid and electrolyte replacement that the use of constipating agents' is unnecessary in acute diarrhoea.

Drugs such as opiates, diphenoxylate and loperamide which reduce bowel motility although widely used, should never be given to children. By slowing peristalsis they make the situation worse this has been seen in a number of children and in volunteers with shigellosis. These drugs also depress respiration and are an important cause of accidental poisoning in childhood

Research

Several research projects are underway aiming to find drugs which will reduce the abnormal transport of fluid across the small bowel mucosa. For example, anti-inflammatory drugs (aspirin and indomethacin) may decrease the action of cholera and other toxins acting on the bowel. Bismuth subsalicylate, in large doses has been beneficial in adults with travellers' diarrhoea.

Other substances have also been tested for example chlorpromazine, which probably inhibits adenylate cyclase was shown to reduce diarrhoeal losses in cholera. However, since it may cause drowsiness in children, and hence a decrease in fluid intake, it is unsuitable for widespread use. Attempts have also been made to prevent cholera toxin binding to the bowel wall, but these studies have not shown the method to be useful in practice.

None of these experimental drugs have reached a stage where they can be recommended for general use in patients with diarrhoea. If drugs which reduce intestinal secretion become better defined and can be shown to be effective in field conditions against diarrhoea caused by a broad range of aetiological agents they will be useful adjuncts to therapy.

Conclusion

Oral rehydration therapy remains the essential treatment and antibiotics are useful only in the few clinical situations described.

Professor H.P. Lambert, Communicable Diseases Unit St. George's Hospital, London. UK.

⁽¹⁾ Anders B.J. et al. 1982 Double blind placebo controlled trial of erythromycin for treatment of campylobacter enteritis, *The Lancet* January 16:131-132.

(From: Diarrhoea Dialogue, Issue 8, February 1982, pp. 4-5)

Session 42: The impact of culture on diarrhea

Session 42, Handout 42A: Sample KAP household diarrhea questionnaire

Session 42, Handout 42B: Role of traditional healing in diarrheal diseases control

Session 42, Trainer Attachment 42A: Diarrhea summary tables

TOTAL TIME: 4 hours

OVERVIEW

An understanding of the local culture's knowledge, attitudes and practices associated with diarrhea is critical to any work done in diarrheal disease programs. During this session, participants reflect on their own perceptions of diarrhea - what causes it and how to treat it. Then, using a questionnaire, they go out into the local community and interview people to gather information about local perceptions and methods) of treatment for diarrhea. When the group returns, they analyze the data to identify practices which are beneficial, harmless, and harmful, and discuss how they might begin developing projects which emphasize diarrheal diseases and oral rehydration therapy.

OBJECTIVES

- To compare the traditional system for diarrhea treatment with the Western biomedical system. (Steps 2-8)
- To gather information on local knowledge, attitudes, and practices associated with the treatment of diarrhea. (Step 4)
- To identify helpful and harmful local beliefs and practices that affect diarrhea and have highest priority for change. (Steps 5-7)

RESOURCES

- Community Culture and Care, pp. 173-242
- Helping Health Workers Learn, Chaps. 7 and 14

Handouts:

- 17B Health Problem Analysis Worksheet (from Session 17)
- 42A Sample KAP Diarrhea Questionnaires
- 42B The Role of Traditional Beliefs

Trainer Attachment:

- 42A Diarrhea Summary Table

MATERIALS

Newsprint and markers; herbs associated with the treatment of diarrhea.

PROCEDURE

Trainer Note

Try to find out as much as you can about local beliefs and practices for the treatment of diarrhea. Invite a Host Country National (e.g., language trainer) or third year Volunteer to be present to supply information concerning local cultural beliefs and practices related to diarrheal diseases. Collect any herbal remedies and evidences of other cures to show participants. Present this information as needed during Steps 6 and 7 to help participants validate what they learned from their interviews with local community members and provide additional content to the session.

Please note that participants conduct a community visit during Step 4. Make any necessary arrangements to facilitate this field exercise.

Step 1 (15 min)

Review On Information Gathering

Open the session by reviewing the main points on information gathering and analysis covered during Sessions 9-13. Ask participants to discuss:

- General information they learned about the knowledge, attitudes, and beliefs of local community regarding diarrhea.
- How this information can be useful in designing a questionnaire for more specific information about diarrheal disease, including its causes and methods of treatment.
- Where to go and who to talk to, to learn about different perspectives and practices concerning, diarrheal disease.

Step 2 (15 min)

Cross-Cultural Perspective an Diarrhea

Tell the group that before going out into the community to investigate local perceptions of diarrhea it is helpful to look at our own beliefs and practices regarding diarrhea. Ask participants to imagine that they have a baby who has diarrhea. Write the following questions on newsprint and ask them to write their answers on a sheet of paper.

- How would you explain the cause of diarrhea?
- What would you do to treat the baby?
- From whom, if anyone, would you seek advice or care for your child?
- What, if anything, would you do to prevent future episodes of diarrhea?

Ask a few participants to share their answers with the group. Record these on the newsprint.

Afterwards, ask the invited Host Country National or third year Volunteer to answer these same questions in terms of how local community members would most likely respond. Ask for someone to record these answers beneath or next to the participants' responses. Have the group comment on similarities and differences in perception.

Step 3 (30 min)

Introducing and Adapting the Diarrhea Questionnaire

Distribute Handout 42A (Sample RAP Diarrhea Questionnaires) and have participants look over the material. Have the group examine the questionnaires in terms of:

- Who the target group is

- What main aspects of diarrheal disease and its treatment the survey(s) attempts to study
- How the information gathered can help the PCV determine the magnitude of diarrhea as a problem in the area.
- How the information gathered can help the PCV develop health education messages and materials which address the knowledge, attitudes and practices.

Ask the participants to divide into two small groups and assign one group the task of discussing and adapting the RAP questionnaire for administering to families and ask the other group to discuss and adapt the RAP questionnaire for use with clinic personnel.

When the questionnaires are ready, have the participants go out into the community in pairs and survey at least two different clinic workers or families. Tell them to borrow or collect if possible, any items they encounter which are associated with diarrhea treatment (e.g., utensils, containers, herbs or medicines used in treatment; ORT solution substitutes found in the home).

Trainer Note

Make sure the KAP questionnaires are brief (10 minutes) and culturally sensitive. You may want to spend some time reviewing the local vocabulary associated with diarrhea.

Depending on the interests of the group, add questions about the preparation of ORT solutions and/or nutrition and sanitation.

For pre-service training it may be necessary to enlist the help of language trainers and second or third year Volunteers to accompany participants during the visits and help out with the interviews (but not to conduct the interviews for the Trainees).

For in-service training, ask Volunteers and Counterparts to work together to collect the information on the questionnaires prior to coming to the training program.

If a visit to the local community or health clinic is impossible, an alternative is to invite in 35 community members to act as cultural resources. Divide participants into small groups and assign a community member to each one. Have each group do same parts or all of the diarrhea questionnaire and collect as much information as possible about local beliefs and practices.

Step 4 (90 min)

Information Gathering in the Community

Have the participants conduct the interviews in the community and at the health centers. If appropriate, suggest specific places to visit and people to talk with to find the needed information.

Trainer Note

If this session is done at the end of the day, you might consider giving participants the evening to do their interviews and information gathering. Then, the next morning, you can reconvene and complete the remaining steps in the session.

Because visits to homes in the community are likely to stimulate interest and questions about

ORT, ask participants to be prepared to either answer questions concerning health practices to prevent diarrhea or inform people of where they can go to obtain more information.

Step 5 (40 min)

Processing the Community Visit

When the participants have returned from their visit, ask them to record their information on the Diarrhea Summary Table (Trainer Attachment 42A) posted in the front of the room.

After each group has recorded their findings, allow participants fifteen minutes to review the table and interpret the results. Ask them to state what they think the table shows.

Trainer Note

The table that appears in Trainer Attachment 42A p. 3 (Diarrhea Summary Tables) should be adapted to fit the information that the participants included on their diarrhea questionnaires. After adapting this form, develop a large version of it and post it before the group returns from their household visits.

Step 6 (20 min)

Identifying Harmful and Helpful Practices Affecting Diarrhea

Tell participants you want them, working in small groups, to analyze the information they gathered in terms of harmful and helpful practices affecting diarrhea.

Ask them to fill out the Health Problem Analysis Worksheet from Session 17 (Handout 17B) answering each of the questions as thoroughly as they can with the information collected from their RAP survey.

Step 7 (20 min)

Reporting on Small Group Analysis

Ask one group to report their answers. Have the other groups add additional answers. Where appropriate, provide any additional information you may have on local beliefs and practices related to diarrhea to help the group fill in any unknowns.

When the questions are answered, have the participants focus on their conclusions about which behaviors are the most important to change. Have them comment on how they arrived at their conclusions, how their perceptions may differ from that of the community, and how they would attempt to resolve such differences.

Trainer Note

Make certain that participants recognize the difference between knowledge and actual practice. People in their communities and they themselves may know what to do, but may not always do it. Note that people must take into account many things in deciding what health actions to take. For example lack of money or social pressures can lead to actions harmful to children's health even though individuals or families "know better".

Step 8 (10 min)

Identifying Hays to Learn More About Local Beliefs and Practices

To close the session, ask participants to briefly discuss their experience of interviewing people about their beliefs and practices - What was easy about the interaction? What was hard? Have them discuss and list in their notebooks other ways to gather and validate information about cultural beliefs and practices in the treatment of diarrhea. Finally, distribute Handout 42B (The Role of Traditional Beliefs) for supplementary reading.

Trainer Note

You may want to recommend additional reading in Community Culture and Care (Traditional and Modern Health Systems) pp. 173-242.)

Handout 42B (The Role of Traditional Beliefs) discusses a number of Brazillian cultural beliefs and practices related to diarrhea. Because there are many similarities in traditions associated with diarrhea across cultures, much of the information may be directly applicable to your host culture.

Session 42, Handout 42A: Sample KAP household diarrhea questionnaire

Date_____

Location_____

Name of Person Interviewed_____

Occupation_____

Number of Children_____ Age _____

1. When did your child last have diarrhea?
2. What other names do people use for diarrhea?
3. How did your child get diarrhea?
4. Do children in the village die from diarrhea?
5. Do you know a child that has died from diarrhea?
6. What do you do when your child gets diarrhea? Why did you do this?
7. Do you give liquids to your child when he or she has diarrhea? Why? What liquids? How much?
8. Do you give food to your child when he/she has diarrhea? Why? What foods?
9. Do you continue breast feeding when your child has diarrhea? The same, more or less than usual?

10. Who in your community helps you when your child has diarrhea? (*Probe: Can the traditional healer help? Can the community health worker? Your mother? etc.)
11. Are there particular medicines that you give your child when he or she has diarrhea? What medicines? Where do you get them?
12. Does hand washing help prevent diarrhea? Can anything help prevent diarrhea?
13. Observe and ask what utensils can be used to measure water, salt and sugar (for oral rehydration).
14. Observe and note sanitation around and inside the home.
15. Observe and note the physical condition of the child in the home. Look for signs of malnourishment or dehydration.

*A probe is an additional, slightly more specific question to ask if a person has difficulty answering a question or provides an answer that is too general or off the point.

Adapted From: "Carrying Out a Survey on Attitudes to Diarrhea", Diarrhoea Dialogue, 9 May, 1982, pp. 6-7.)

KAP SURVEY ON DIARRHOEA QUESTIONS TO ASK HEALTH PERSONNEL

Date _____
 Location _____
 Name of Person Interviewed _____
 Occupation _____

1. Describe how parents commonly treat children with diarrhea.
 2. What medicines are most frequently used by parents to treat diarrhea: (list in order of importance).
- What medicines are usually used by health personnel to treat diarrhea. (list in order of importance).
3. Do health personnel encourage parents to treat their children at home? Yes _ No _ If yes, what are they encouraged to do?
 4. When should you treat diarrhea with sugar-salt or ORS solution? Why should it be used?
 5. If ORS is available, indicate the place where one can obtain it and the cost.

	Yes	No	Cost	Free
Hospital	___	___	___	___
Health Center	___	___	___	___
Dispensary	___	___	___	___

Village Health Agent	—	—	—	—
Pharmacy	—	—	—	—
Market	—	—	—	—
Other	—	—	—	—

6. Please give an approximate estimate to the following:

	Hospital	Health Center
Approximate percentage of cases of diarrhea with severe dehydration	—	—
Approximate percentage of cases treated by	—	—
I.V. Therapy		
Cost of a liter of	—	—
I.V. solution		

Session 42, Handout 42B: Role of traditional healing in diarrheal diseases control

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Charlottesville, VA

In northeastern Brazil, infant mortality from diarrhea and dehydration is among the highest in Latin America. It is estimated that 159 out of 1,000 children born in urban northeast Brazil die before their first birthday,¹ with diarrhea as the primary or contributing cause of death in 54% of the cases.² And, because unrecorded early deaths are common, particularly in rural areas of Brazil, actual childhood fatalities most certainly climb even higher. Regardless of which statistics are cited, it is fair to say that in this arid region gastrointestinal illnesses take an enormous toll on infant lives, resulting in immeasurable losses for poor Brazilian families.

Faced with the serious and direct threat diarrhea and dehydration pose for infant survival, it is not surprising that cultures throughout the world have evolved their own locally adapted healing systems to help them combat this major child health problem. I will first discuss the elaborate traditional medicine system in northeastern Brazil as it relates specifically to enteric diseases.

Next, I will show how these longstanding indigenous health approaches are rapidly changing, sometimes for the worse, with the recent widespread introduction of biomedicine in northeastern Brazil. Finally, I will discuss the implications of traditional healing for the delivery of primary medical services, particularly oral rehydration therapy and related diarrheal diseases control interventions.

This exercise is important if we are to increase the understanding between the people who struggle with diarrheal illnesses and death on the one hand, and health professionals who aim to treat and prevent it on the other. Confronted with data that document the existence of radically different viewpoints pertaining to childhood illness, we can appreciate more fully the important role human culture plays in shaping the diarrheal episode. That other health ideas and healing ways exist and are embraced by countless poor families living in rural and semi-urban areas in developing countries will hopefully aid health professions to move beyond their own explanatory models of disease,³ including enteric infections. This awareness hopefully will stimulate a reassessment of the limitations and strengths of the biomedical approach to diarrheal diseases and lead to the development of culture-sensitive approaches to control which skillfully articulate the biomedical and popular spheres of care.

Methods

The research was carried out from July 1979 to June 1980 with a three-month follow-up in 1981 in Pacatuba, a rural town with a population of about 7,000 in the Brazilian northeast, about thirty-two kilometers from Fortaleza, the state capital. Field observations were occasionally extended beyond Pacatuba; I accompanied village mothers and their sick children to the Marieta Calas Rehydration Center and to a number of hospitals located in the capital when necessary. While I utilized quantitative methods, such as formal questionnaires, medicinal plant collection and botanical identification, and recording of diarrheal illness episodes in children, I relied most heavily upon qualitative anthropological techniques including participant-observation and informal, open-ended interviews with key informants, particularly traditional healers. To the extent possible, I participated actively in the lives of village families in order to understand what diarrhea meant to them. I saw, in a sense, childhood diarrhea and death through the eyes of a village mother by participating fully in the women's sphere of village life. I learned by involving myself and my family directly in the lives of Brazilian peasants plagued by this ubiquitous threat.

The role of traditional medicine in diarrheal diseases

Diarrhea is an illness of poverty in Pacatuba; it flourishes among the poorest village families with low incomes, faulty nutrition, poor living conditions, and inadequate clean water supplies. Their infants, ages seven to twelve months, are at highest risk for both the most total days and episodes of diarrhea, which climbs on average to a staggering fifty days, or over nine episodes, per person per year.⁴ To cure their ailing children, poor village parents in northeast Brazil for hundreds of years have relied solely on their own folk medical wisdom. Ancestors borrowed many of these healing ways from Dutch and Portuguese colonizers and the West African slaves they captured and brought with them. Other medical beliefs and practices evolved as direct responses to specific illnesses and environmental conditions found in Pacatuba. Through trial and error experimentation, people developed their own explanations about the causes of illness, diagnostic techniques, therapeutic practices, a pharmacopoeia, preventive strategies, and carefully selected healers to assist them with major health problems, such as diarrhea and

dehydration. Enhanced childhood survival, perhaps, reinforced the continued use, generation after generation, of a large number of these popular medical practices.

Traditionally, at least three types of indigenous healers treated children with enteric infections: the *rezadeira* or *rezador* (prayers); the *raizeiro* (herbalist); and the *Mae de Santo* (voodoo healer). These "doctors of the poor", however, differ significantly in their training, powers, and healing ways. *Rezadeiras* (-*dors*), the most common type of lay healer in Pacatuba, are deeply religious women and men who are endowed with the power to heal from God, a special healing force that they inherit either directly from the deity or from an elderly folk healer shortly before his/her death. Because most *rezadeiras* are illiterate, they must learn healing skills not from books, but from their mothers, fathers, or elderly neighbors; they imitate a practicing healer with whom they associate, watching, reciting prayers, and learning to prepare home remedies under the expert eye of their mentor. Unlike *rezadeiras* who rely primarily on god-given healing powers, the *raizeiros* de emphasize the supernatural role in illness. As herbalists, they cure with chemical substances extracted from medicinal plants and, more recently, with modern pharmaceuticals. The *Mae de Santo* head of the religious sect, Umbanda - a voodoo-like religious synchronization of ancient African, Brazilian, and Catholic belief - is distinguished from the other traditional healers in several important ways. As a spirit medium, she has direct contact while in trance with supernatural beings from whom she receives the power to heal. This voodoo healer, unlike the prayers or herbalists, also has the power to cause harm in the form of sickness and even death. Because of her tremendous supernatural power, flirtation with the underworld, and demands for food and money offering, she is feared, respected, kept at a social distance, and often unacceptable to more pious clients.

These healers' skills are in particular demand by village parents, since according to popular thought diarrhea and dehydration are symptoms of a number of folk-defined illnesses including evil eye (*quebranto mau olhado*), fright disease (*susto*) spirit intrusion (*sombra, encosto*), intestinal heat (*quintura do intestino*), and fallen fontanelle (*caida da moliera*). An envious glance at a beautiful child by neighbors, friends, or strangers; a sudden, unexpected fright from, say, a passing train or barking dog; intrusion of a dead person's spirit into a child's body; heat that accumulates inside the intestine and upsets the hot-cold humoral equilibrium can all result in diarrhea just as a fall or blow on the head is believed to cause the child's fontanelle to sink into its skull, a signal of grave illness and almost certain death.

Healers and parents arrive at a definitive diagnosis by recalling recent social events believed to trigger diarrhea and noting the child's symptoms and the consistency, color, and smell of his stool.

The course of treatment, although quite foreign to most Western medical professionals, follows logically from this popular diagnosis: the appropriate healer is sought among available alternatives; standard confirmatory techniques are used; and, finally, rituals and treatment are directed at ameliorating the folk-assigned cause of illness. The evil eye, for instance, is drawn out of the child's body by passing three leaves over the victim's body while praying. The evil enters the large, fragile leaves, which wilt quickly; and the *rezadeira*, careful not to spill their evil contents, flings them out an open window. The evil disease forces, including diarrhea, are thought to disappear with the leaves, leaving the child's body "clean" and disease-free. In the case of fright disease, the healer must lift and realign the dislocated internal body parts that have fallen out of place with a sudden start in order to stop the diarrhea. This the healer does by reciting a verse and then lifting the infant's buttocks and hitting them lightly three times. When a

child has been possessed by a spirit, the healer must talk to and negotiate with the spirit an acceptable payment of food, candles, or money in order to appease it and coax it out of the child's body. For intestinal heat, the healer (often the herbalist or parent) must re-establish the child's humoral balance by counteracting the excessive heat with "cold" remedies, foods, or baths, and in extreme cases the "heat" must be flushed out of the body by frequent purges - therapies based on the Greek Principle of Opposition described by Hippocrates.⁵ Lastly, to effect a cure for a sunken fontanelle, the healer attempts to raise it to its original position by holding the child upside down by its ankles and tapping the soles of its feet or by pulling the infant's hair upward and pushing on the hard palate.

To prevent childhood illness, specific prayers, amulets, and behavioral strategies were advised for each folk illness. But the best protection against infant diarrhea was the traditional pattern of prolonged breastfeeding. Mothers almost always initiated the vital flow of milk without complication shortly after birth. After establishing a milk supply, they continued nursing - the only source of the infant's nutrition - for about the first six to twelve months of life. Even after this, village mothers supplied a significant but diminishing amount of breastmilk for several more years. That breastfeeding played a critical role for infant health in Pacatuba's past is evident from the number of folk medical practices evolved, such as the forty-day resting-in period (*resguardo*), high caloric and protein-rich postpartum diets, and wide use of plant galactagogues to stimulate milk flow, to insure that mothers not only initiated but continued lactating.

Prolonged breastfeeding did not, of course, prevent all infant diarrhea; the sources of infection were everywhere. Parents in Pacatuba, like members of other peasant communities, were able to draw upon an extensive herbal pharmacopoeia in time of illness. Local healers identified some twenty-one plant remedies they routinely used to treat childhood diarrhea, of which fifteen were identified by Brazilian botanists. A computerized search revealed that of these fifteen, eleven have been recognized by medical researchers as specific to some aspect of gastroenteritis. Specifically, these plants possess amebacidal, anticholinergic, antihelminthic, antibacterial, or antiviral qualities and perhaps, in the case of coconut water, act as an oral rehydration.

The impact of modern medicine on traditional practices

The traditional health beliefs and practices described above, however are not static; they are being rapidly modified as modernization sweeps through Brazil and biomedicine makes inroads into the rural northeast. Western-style hospitals, rehydration centers, medical schools, and specialized clinics increasingly provide health care in major cities and, to a more limited extent, in rural communities, such as Pacatuba. Clearly, rural families stand to profit from modern medical miracles: antibiotics that cure tuberculosis, meningitis, and pneumonia, and vaccinations that prevent polio, diphtheria, and measles. However, modern medicine's effect on the rural poor is paradoxical. While sophisticated technology exists, it is often ill-adapted to rural conditions, inaccessible, and unable to effectively treat diarrhea, Pacatuba's commonest childhood ailment. Moreover, beneficial traditional medical strategies are often not recognized until they have been completely undermined.

For example, despite increasing numbers of modern health professionals in the northeast, they remain concentrated in distant cities, are expensive, and often are removed socially from the culture of their poor rural patients. Instead, we learned from analysis of forty illness episodes that diarrhea in poor homes continues to be resolved, for the most part, using local resources.

Mothers were the first to diagnose and treat their children with a wide variety of herbal remedies shortly after symptoms appeared only a mean of 0.6 days into the episode; the mother then administered over-the-counter pharmaceuticals, on hand or borrowed. After only 1.2 days, families consulted traditional healers. Shortly after beginning the local healing ceremony, 27 days after onset, parents consulted pharmacy attendants to purchase additional drugs. But not until over eight days elapsed, when dehydration was obvious, did a small number of families consult local physicians; rehydration centers and hospitals, if resorted to at all, were not sought until 9.6 and 12.5 days, respectively, when the chances of severe dehydration are marked.⁶ That traditional healers continue to play a significant role in the early management of diarrheal illnesses, even in the face of modern medicine, became apparent in our subsequent study of sixty-two infants admitted to an intravenous rehydration center in Fortaleza⁷: 57 (91.9%) infants had already been treated by indigenous healers for a number of folk illnesses prior to admission. Moreover, using standard microbiological culture and bioassay methods, we determined that these common folk illnesses treated by healers were associated with enteric pathogens such as enterotoxigenic *E. coli* (ST and LT) (24.5%), rotavirus (10.5%), *Campylobacter fetus* subsp. *jejuni* (3.5%), and *Entamoeba histolytica* (1.8%).

Besides the introduction of new healers, modern disease etiologies such as "enterite" and "microbes" are occasionally referred to by village mothers, yet the poorest parents continue to define diarrhea in folk disease terms and believe that the underlying cause, often supernatural, must be tended by indigenous healers. By no means, however, does this belief keep them from simultaneously seeking help from doctors for the same or different problems. Similarly, the traditional practice of prolonged breastfeeding is being dramatically replaced by bottle-feeding; we have reported sharp declines in both the total numbers of Pacatuba's women initiating breastfeeding and the length of time they lactate, trends most apparent among wealthier village women, but also occurring among the poorest women since 1964. This modification of traditional preventive wisdom has had a significant detrimental impact on children's health, since we have also shown that a bottle-fed infant in Pacatuba suffers twelve times more days of diarrhea than an exclusively breastfed infant. Finally, parents are increasingly looking away from their sweetened herbal teas for therapy towards an almost limitless number of modern "anti-diarrheal" drugs. These include antibiotics like chloramphenicol and tetracycline, cathartics, antimotility agents, and pectin-containing antidiarrheals, the majority of which have been judged by the World Health Organization to be ineffective, unindicated, or indeed, harmful.

Implications for diarrheal diseases control programs

These insights from Pacatuba impressed on our minds two important facts. First, whether health professionals recognize it or not, villagers do not exist in a health care vacuum. Quite the contrary: they have their own health care system, based on tradition, with deeply ingrained and culturally shared illnesses, beliefs, and practices relating to enteric diseases. Secondly, village parents nowadays no longer solely depend on folk-healing ways, but are eclectic in their help-seeking behavior and readily integrate biomedicine when needed. As a consequence of these discoveries, we became convinced that what was needed was an innovative approach to diarrheal diseases control, a health delivery strategy that would build on the strengths of the existing indigenous system while at the same time incorporating effective modern therapy

Fortunately, there now exists a simple, safe, inexpensive, and effective medical therapy to treat diarrhea, regardless of its specific etiology: oral rehydration therapy. By simply drinking a solution of water, sugar, and salts to replace the water and salt lost by the body during diarrhea,

countries lives can be saved from diarrhea and dehydration. Although the solution advocated by WHO is judged most effective in rehydrating children, even simple table salt and sugar or cereal-based solutions made from rice water - readily available in rural village homes - are effective rehydrants. Despite the overwhelming acclaims for ORT in reducing infant mortality, getting the solution and methods to poor families most in need remains a major problem.

Our answer to the problem of accessibility has been to design an alternative oral rehydration program that mobilizes traditional healers, integrates ORT into the traditional healing ceremonies, and builds referral networks that link healers to community-based hospital care for children judged to be at high risk.⁹ By spoon-feeding ORT as a supplement to medicinal teas and in the context of healing rituals, healers working together with and instructing village mothers can treat most diarrhea without ever resorting to outside help. When properly approached, we have found healers interested in ORT or any modern method that works, as long as it can be easily incorporated without destroying their own medical tradition. Government officials have also given their tentative support, pending evaluation, to this lay-healing initiative on the grounds that the quality of health care would not be compromised when incorporated into the national health care delivery system.

While collaboration with traditional healers for the delivery of ORT and other primary health care services presents several problems, such as their practice of potentially harmful folk treatments (also present in modern diarrheal management), low literacy, and resistance from medical professionals, to name a few, we believe these can be overcome with creative approaches. The advantages of recognizing traditional healers as ideal providers of village-based ORT far out-weigh these problems, from our viewpoint: they are already there; provide good coverage of poor children; are sought early in the course of illness; are trusted by village mothers; speak the same illness language; recognize clinical symptoms associated with diarrhea and dehydration even though they may call them by different names; and prepare accurate ORT, a skill we attribute to their life-long experience in preparing traditional remedies.¹⁰ In addition, indigenous practitioners follow up children during the three- to nine-day healing ritual and, perhaps most important, strongly advocate preventive breastfeeding.

In conclusion, if we take seriously the challenge of providing basic health care to all people within the next twenty years, it is time we look beyond hospital-based strategies to creative new delivery schemes. Traditional healers have been recognized by numerous social scientists to be critical providers of health care for many so-called hard-to-reach populations.¹¹⁻¹⁴ And a number of international agencies, such as WHO, have also recently recognized their important contributions to world health:^{15,16} USAID and The World Rural Medical Association issued policy statements in favor of delivery strategies that incorporate traditional healers in 1979 and 1980, respectively.^{17,18} An alternative traditional healer-centered program, at least in the case of diarrheal diseases control, offers great potential for the delivery of care that not only reaches poor families but is also medically sound and culturally appropriate.

REFERENCES

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2. Puffer, P. R., Serrano, C. V. *Patterns of mortality in children*. Washington, D.C.: PAHO No. 262, 1973.

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Answer Codes for Columns VI through IX

Column VI

- 1 = less than usual
- 2 = as usual
- 3 = more than normal
- 4 = Discontinued/not done
- 5 = Not applicable (child weaned)

Column VII

- 0 = at home
- 1 = traditional healer
- 2 = Dispensary/Health hut
- 3 = Pharmacy
- 4= Private Doctor
- 5 = Hospital
- 6 = Other

Column VIII

7										
8										
9										
10										
TOTAL										

Answer Codes for Columns VI through IX

Column VI

- 1 = less than usual
- 2 = as usual
- 3 = more than normal
- 4 = Discontinued/not done
- 5 = Not applicable (child weaned)

Column VII

- 0 = at home
- 1 = traditional healer
- 2 = Dispensary/Health hut
- 3 = Pharmacy
- 4 = Private Doctor
- 5 = Hospital
- 6 = Other

Column VIII

- 1 = 1st day of initial diarrhea episode
- 2 = 2nd day of diarrhea
- 3 = 3rd day of diarrhea
- 4 = 4th day of diarrhea
- 5 = 5th through 10th day of diarrhea
- 6 = unknown

Column IX

- 0 = no treatment
- 1 = rice water, tea, etc
- 2 = sugar salt solution (SSS)
- 3 = ORS
- 4 = antibiotics
- 5 = IV

6 = unknown

7= traditional medicine

* For questions on quantity of SSS use Column VI codes. The answer cod. (1-4) selected should be based on recommendations stated in Session 40 (Dehydration Assessment) and Session 41 (Rehydration Therapy)

(Adapted From: CCCD KAP summary Form, Zaire)

Session 43: Implementing ORT in the village

Session 43, Handout 43A: "Village" station ort worksheet

Session 43, Trainer Attachment 43A: Problem situations: ORT in the home

Session 43, Trainer Attachment 43B: Oral rehydration with dirty water?

Session 43, Trainer Attachment 43C: Educating public about oral rehydration therapy

Session 43, Trainer Attachment 43D: Pros and cons of ort in the village

TOTAL TIME: 2 hours

OVERVIEW

In Session 42, (The Impact of Culture on Diarrhea), participants gathered and analyzed information on the local culture's beliefs and practices regarding diarrhea. In so doing they indirectly began to realize some of the problems or difficulties associated with implementing ORT with villagers.

In this session, participants learn to overcome some of the problems they may face in preparing the different types of rehydration solutions in village conditions, including inappropriate utensils, dirty water, unavailability of key solution ingredients, and so forth. Participants learn to use local alternate ingredients as substitutes and resolve problems related to teaching and administering rehydration therapy in the village.

OBJECTIVES

- To list potential advantages and disadvantages (pros and cons) of ORT in the village. (Step 1)
- To identify and overcome problems in mixing ORT solutions using ORS packets, sugar-salt solution, and home-available ingredients in village settings. (Steps 2, 3)
- To demonstrate and teach technically correct and educationally and culturally appropriate methods of rehydration solution preparation and administration in the village. (Steps 4, 5)

RESOURCES

Helping Health Workers Learn pp. 1-17 to 25, and 27-1 to 34.

Handouts:

- 27C Evaluation of Practice Session (from Session 27)
- 43A Village Station ORT Worksheet

Trainer Attachments:

- 43A Problem Situations: ORT In The Home
- 43B Oral Rehydration with Dirty Water?
- 43C Educating the Public About ORT
- 43D Pros and Cons of ORT in the Village

MATERIALS

Markers, newsprint, packets, pots, cereal, local tuber crop, utensils, (See Trainer Attachment 43A)

PROCEDURES

Trainer Note

This Session requires a variety of local materials, and considerable preparation time. Please carefully read and follow the instructions from Trainer Attachment 43A for setting up the stations used in Step 2. If participants collected any locally-used utensils, containers, remedy ingredients, etc., during Session 42 include these in some fashion at the stations.

Trainer Attachment 43B (Oral Rehydration with Dirty Water?) and 43C (Educating the Public About ORT) provide information on problems associated with implementing ORT at the village level. Use these articles to help fill out the discussion of problems in Step 4.

If possible, arrange opportunities for participants to teach mothers to mix ORT solutions in homes or the local clinic, under the supervision of someone skilled in mixing them.

Step 1 (10 min)

Pros and Cons of ORT at the Village Level

Begin the session by explaining to the group that up to this point, their experience in working with the various ORT solutions has been, for the most part, a laboratory experience. Explain that during the next few hours they will apply what they've learned to a village setting and will deal with a number of problems often encountered in ORT programs at the village level.

Ask participants to brainstorm a list of "pros" and "cons" (advantages and disadvantages) of ORT in the village based on their brief experiences in the local area and information learned from resource people and readings. Have someone list these on newsprint. See Trainer Attachment 43D for further explanation and a potential list. Save the newsprint for later reference in Step 3.

Step 2 (45 min.)

Village Station ORT Preparation

Ask participants to form three small groups for working at the three stations set up around the room. Distribute Handout 43A (Village Station ORT Worksheet) and review it with the group. Tell each group to spend no more than 15 minutes at each station. Ask the groups to select their first station and begin the assignments posted at the station.

Trainer Note

As the participants begin their work make sure that:

- they read the Situation Description Sheet posted at each station before doing anything. These descriptions set the stage and tone for that particular "village" scene
- each group has one resource person who has had some previous experience in preparing oral rehydration solutions in the
 - village
- participants fill in their work sheets at each station before moving on to the next
- the groups leave each station in the shape they found it
- you move around the room making note of progress or problems, and trouble-shooting if necessary.

An alternative to having the group solve the problems they find at the various stations is to lead a large group discussion of some of the problem situations described in Trainer Attachment 43A, (Problem Situations: ORT In The Home). The answers to these problem situations that the participants will either encounter directly in the above step or just discuss are included in this Trainer Attachment.

Step 3 (30 min)

Sharing Problems and Discussing Solutions

Reconvene the large group. Ask one group to read the problems, they encountered at each of the work stations. Ask for the other two groups to comment on these and to add any additional problems they encountered.

Next, ask the group to determine:

- Which problems seem to be most common?
- Which problems have the most immediate solutions? What are those solutions?
- Which problems are inherent to the type of solution, or which are specific to conditions in the country?
- Were the problems presented here realistic? If not, what other problems might be encountered?

When all problems have been recorded and possible solutions discussed, ask participants to refer back to the list of pros and cons of village-level ORT (from Step 1). Ask the group to consider the fiat, especially the "cons" in light of the problems encountered at the stations, and decide which of the disadvantages may be the most significant for the PCV to address (i.e., where can the PCV have the greatest potential impact).

Trainer Note

As each station is discussed, have someone record the problems cited by the group on newsprint prepared with the categories listed from Handout 43A (ORT Worksheet). Use Trainer Attachment 43A (Problem Situations: ORT in The Home) as a guide to be sure all the problems

at each station are reported.

Be sure the following points are raised and discussed:

- the use of sugar-salt or other ORT ingredient substitutes used in the host country
- constraints regarding water quality and the issue of a "trade off" between clean water and lack of fuel for boiling water or mothers' motivation to boil water
- hygiene issues including hand cleanliness and "kitchen" sanitation for preparing rehydration solutions
- issues regarding inaccurate measures with which to prepare rehydration solutions, and implications of inaccurate measuring for the child.

15 Minute Break

Step 4 (30 min.)

Preparing Skits for Teaching Sessions on ORT in The Village

Have the three small groups that worked together in Step 2 prepare a teaching skit based on the first station they worked at in that Step. Allow each group 25 minutes to plan a 5 minute "skit" on how they would teach a small group of four or five mothers the solution preparation and appropriate administration of that solution.

Encourage participants to be creative in their teaching sessions at the village stations and to address the important issues raised in earlier steps.

Trainer Note

Make yourself available to the groups as a resource person for skit planning, but avoid planning it for them. Ask them to use the evaluation form from Session 27 (Handout 27C) as a guide for planning and evaluating their skits. Also ask them to keep in mind the information covered in Session 23 (Adult Learning and Nonformal Education Techniques) when preparing their skits.

In particular, remind them to keep in mind who they are teaching and what skills and knowledge the person needs to be able to perform in their particular setting. You may want to look over Helping Health Workers Learn, pp. 1-17 to 25 and 27-1 to 34 for further help in skit development.

Step 5 (20 min)

Performing Skits for Teaching CRT in The Village

After 30 minutes of preparation time, ask each group to perform their skit. Hold the discussion on the skits for Step 6.

Step 6 (30 min)

Processing Important Information on ORT Teaching at the Village Level

Ask the participants to critique and discuss the skits. Use Handout 27C (Evaluation of Practice Session) and the following questions to guide the critique.

- What was the most important message that needed to be conveyed?
- Was that message conveyed?
- Was all the necessary information provided?
- Was the information accurate? was it clearly presented?
- Was the mother or caretaker actively involved in the session?

Ask the participants to suggest what was good about the teaching session and what could be improved.

After the participants have critiqued the skits, ask one or two of them to summarize the key points that should be taught about oral rehydration solution preparation and administration in the village.

Trainer Note

The main point of this critique and discussion of the teaching sessions is to ensure that participants recognize and use the most effective techniques for teaching mothers important points about preparation and administration of Oral Rehydration Solutions in the village. Some specific points about effective teaching in the village include:

- Learning by practice (rather than lecture)
- Making certain that the learner understands (by paraphrasing, demonstrating her understanding, etc.)
- Showing respect for the knowledge and skill of the learner
- Drawing on the experiences of the mother or caretaker during the learning session
- Presenting new skills and information in terms that make sense to the mother or caretaker.

Emphasize the importance of teaching mothers individually and following up to make sure that they have mastered the skills. Participants can read about the importance of this in "Oral Rehydration Therapy (ORT) for Children" in their ORT resource packet.

Session 43, Handout 43A: "Village" station ort worksheet

Before you do anything at the village station:

1st: Read the Situation Description Sheet

2nd: Evaluate the physical problems you are encountering, both environmental and in terms of materials.

Look for both obvious and subtle problems. Some things you should note include the following:

- are adequate containers for measuring and mixing available?
- are necessary ingredients available?
- is there an adequate water source?

3rd: Evaluate other problems you may or will be encountering. Some things to think about or note include the following:

- what might be the mother's or caretaker's likely perception of the situation?
- what is your perception of the situation?
- are there any health education opportunities regarding prevention of diarrhea or teaching of ORT?
- is there the means of communicating how to properly administer the solution after it is mixed?
- to whom should this message be addressed?
- what is the most important health education message to communicate?
- what could your role be in the follow-up of this situation?

4th: After you have made adequate observations and considered the above questions, determine what course of action you and your group will take in preparing oral rehydration solution at the station. Be creative in finding answers to your problems, but keep foremost in your mind the health of the child in need of rehydration.

5th: Carry out your decision about how to best treat the child given the problems at your village station.

6th: Leave the station as you found it and move on to the next station. Ask the trainer to help arrange the stations for the next group if necessary.

VILLAGE STATION ORT WORKSHEET

	Station #1	Station #2	Station #3
PHYSICAL PROBLEMS			
MISCELLANEOUS PROBLEMS			

Session 43, Trainer Attachment 43A: Problem situations: ORT in the home

The following problem situations are exaggerations of ones that Volunteers may encounter when trying to prepare Oral Rehydration Solutions in their villages. Each situation description should be adapted to be culturally appropriate and then read or posted if work stations are used for the participants. Based on their knowledge and experience to date, the group should describe or actually carry out how they would handle each situation given the ingredients available and their ingenuity. Each situation (or station) contains ingredients either for:

- preparing homemade sugar-salts solutions
- using ORS packets
- providing simple nutritious foods and/or
- replenishing the liquids and nutrients lost during diarrhea but not correcting the electrolyte imbalance.

The materials needed for each work station are listed under the problem. Suggested answers as to how to treat each problem stated at the three stations, given the available materials, is provided after each situation and problem described on these sheets. Do not post these answers.

Problem Situation Number 1:

Situation Description: The child who is one-year old had four to six loose stools yesterday. The mother had only one packet of ORS and mixed half of it on the first day of her child's diarrhea. She gave the ORS solution from a cup but the baby coughed and choked, and refused to drink. The mother is trying to wean the child from the breast and so is nursing only once a day. The child only wants to sleep and when awake is always reaching for the mother's breast.

Problem: What would you do if in the household you only found the following:

- a fresh but half empty packet of ORS
- water from a clean source
- rice powder
- a dirty one liter container
- salt
- large bulk tea
- one teaspoon

Answer: Follow treatment Plan B of the WHO Treatment Chart and the information for mixing ORS. If the child continues to have diarrhea after finishing the half liter solution of ORS and if it is used in the local culture give the child the rice powder solution. If the diarrhea persists for longer than two days and/or the child shows more signs of dehydration, take him or her to the health center.

Problem Situation Number 2:

Situation Description: The older daughter (age 7) has told you that both her younger brother and sister have had a runny tummy several times today. The mother is at the market selling bread. The children have diarrhea and cry a lot but appear to be fine. When you check their pulse you find it to be normal. Their skin goes back immediately after you pinch it and they are constantly asking to drink.

Problem: What would you do if in this household you found the following foods and materials:

- potatoes
- salt and molasses (or appropriate country specific sugar substitute)
- large mixing spoon
- water
- large gourd

Answer: Follow recommendations under Treatment Plan A of the WHO chart and the directions on how to mix sugar-salt solutions.

Problem Situation Number 3:

Situation Description: It is the rainy season and there is little food available. The roads to the health center are washed out. The mother is in the field most of the time. When you pass by her house you find the woman at home worried because her two year old son has had diarrhea since yesterday. She asks you for some Western medicine to treat her son. You have been told never to give out the medicine from your Peace Corps kit.

Problem: What would you do and say to this mother if, in this household, you look around and find the following:

- sugar cubes
- dirty water in a bucket
- several small tea cups
- carrots and other vegetables and tubers
- small mortar and pestle.

Answer: This scenario should lead to a discussion of the pros and cons of treating children with medicine that is not readily available in that culture or village. If the child is not in danger of dehydration all the materials are there for preparing the sugar-salt solution and providing some nutritious food in between drinking the solution. Review Trainer Attachment 43C for the discussion of the pros and cons of using dirty water to prepare the solution, and Session 32 for information on preventing malnutrition.

Note:

The materials at each station should include potential ingredients for ORT, but one station should present so great a problem or be so inadequate that participants have to consider referring the children to the health center immediately. Materials should also include some utensils for preparation and some means for covering the solution once prepared to keep it more hygienic, but these should not be obvious (e.g.: newspaper).

Session 43, Trainer Attachment 43B: Oral rehydration with dirty water?

Many of you have asked about the use of dirty water in making up oral rehydration solution when clean water is unavailable. Richard Feachem suggests that the benefits of early replacement of water and electrolytes. In acute diarrhoea they outweigh the possible risk of using contaminated water.

Mothers are encouraged to prepare oral rehydration fluid using only clean water. However, most people in rural areas of developing countries have no access to clean water and in some communities the only available water is heavily contaminated with faecal material⁽¹⁾. In these circumstances it is recommended that the water be boiled and allowed to cool before preparing the oral rehydration fluid. This is often impracticable - involving use of expensive fuel and delaying the start of treatment. If oral rehydration therapy becomes commonplace in villages it is

certain that the oral rehydration fluid will often be made up with water containing pathogens of faecal origin. Does this matter? The answer is we don't yet know but it probably doesn't.

The main questions

The dirty water used to make up the fluid may contain faecal viruses, bacteria and intestinal parasites. Of these only the bacteria may multiply if conditions are right. Oral rehydration fluid is normally used for about 24 hours after it is prepared and therefore the two central questions are:

- can certain bacterial pathogens that may be present in water multiply in oral rehydration fluid stored in the home at 20 -30°C

- if they can, what is the effect of ingesting a large dose of bacterial pathogens on an intestine already colonized by the same pathogen or by another viral, bacterial or protozoal pathogen

Only multiplication (rather than enhanced survival) of a pathogenic bacterium in oral rehydration fluid is important, since only if multiplication takes place might the child receive greater dose of the bacterium in the oral rehydration fluid than in plain water.

Laboratory experiments

The results of laboratory experiments are conflicting. Some have found a steady decline in the number of pathogens introduced into oral rehydration fluid. On the basis of these findings a WHO Scientific Working Group⁽²⁾ concluded that "*Escherichia coli*, *Vibrio cholerae*, *Salmonella* and *Shigella* do not multiply in oral rehydration fluid and survive in declining numbers for up to 48 hours".

This is unlikely to be true in all circumstances and one recent study has shown that *V. cholerae* and enteropathogenic and enterotoxigenic strains of *E. coli* increased in concentration by between 1 and 5 log₁₀ units after 24 hours in oral rehydration fluid. However, all these experiments used oral rehydration fluid made up with distilled water, or with sterilized surface water and therefore failed to duplicate actual field conditions.

Gambian study

A more relevant study on the behaviour of wild *E. coli* in oral rehydration fluid made up with well water has recently been reported from The Gambia⁽³⁾.

The concentration of *E. coli* in well water alone fell slightly during 24 hours storage (23-30°C). However, in well water plus oral rehydration salts the concentration increased by over 2 log₁₀ units. The same study compared the response of children (three months to four years) receiving oral rehydration fluid made up with well water with those whose fluid was made up with sterile water. There was no difference in the incidence and duration of acute diarrhoeal attacks, or in the growth rates, between the two groups. It was estimated that the *E. coli* ingested in stored oral rehydration fluid were at most 5 per cent of the *E. coli* regularly ingested in food eaten by these children in The Gambia.

A sound strategy

In conclusion, some bacteria may multiply in stored oral rehydration fluid. There is no evidence, however, that using contaminated fluid increases the incidence, severity or duration of diarrhoea, and there is one study indicating that it does not.

A sound strategy, pending more field research, is to advise mothers to use the cleanest water available, to boil it where possible and not to keep the oral rehydration fluid more than 24 hours. To those who express concern at this approach it must be stressed that the proven benefits of water and electrolyte replacement early in acute diarrhoea far outweigh the possible risk of using contaminated water.

⁽¹⁾ *The Lancet*, August 2, 1980 pp. 255-256

⁽²⁾ *Report WHO/DDC/79.3*

⁽³⁾ *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 1980, Vol. 74, pp. 657-662.

(From: Diarrhoea Dialogue, Issue 4, February 1981, p. 7)

Session 43, Trainer Attachment 43C: Educating public about oral rehydration therapy

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"To obtain maximum benefit in many areas, oral rehydration must be made available in villages where there are no trained health professionals.... The anticipated advantages of such programs are expected to justify the risks, but programs without medical supervision have not yet been carefully monitored for complications or results to determine how the solutions are actually used"

Letter: *Journal of Pediatrics*,
1983, Drs. Harrison, Finberg,
Harper, and Sack.

The central concern of the medical community has shifted from the clinical efficacy of oral rehydration therapy towards the practical risks of using ORT in unsupervised settings. These risks are clear.

- Super concentrated solutions of oral rehydration salts are dangerous.
- Diluted solutions of ORS are ineffective.
- Too little of ORS is ineffective.
- Too rapid administration of ORS can induce vomiting.
- ORS given alone for long periods without other liquids and foods can be dangerous.

A number of questions must be addressed:

- Will mothers read, remember and use the right mixing proportions?

- Do mothers have an adequate volume measure available? Can they, in fact, determine what a liter is?
- Do mothers have the time and patience to give an ORS solution slowly over twenty-four hours to a sick child, given all the other demands on their time and energy?
- Will mothers give up traditional practices like which are counterproductive?
- Will mothers breastfeed during episodes of diarrhea and give other liquids?
- How do we teach mothers - hundreds of thousands of mothers - the new skills and attitudes associated with proper use of ORT in unsupervised settings?

Interestingly, these questions are not medical ones. They are educational and they are sociological. They move ORT out of the laboratory, out of the clinic, and even out of the small pilot study, and place it squarely in the arena of social and behavioral change.

Fortunately, we now have two large-scale and comprehensive programs of public communication to promote oral rehydration therapy one in Honduras and one in The Gambia - which help answer some of these questions. USAID, through its Offices of Education and Health in the Bureau for Science and Technology, has supported not only a comprehensive public education campaign in ORT in each country, but also has financed a scientific evaluation of both programs, looking at changes in rural attitudes, knowledge, behavior, and health status. The programs do not yet answer all our questions, but they do contribute significantly to our understanding of widespread ORT promotion.

In both countries, the Ministries of Health are developing a campaign which combines radio, specialized print materials, and health worker training to deliver information on home treatment of infant diarrhea, including the proper preparation and administration of ORT. In Honduras, the government is promoting a locally produced WHO-formula packet called Litrosol. In The Gambia, the government is promoting a sugar/salt (S/S) rehydration regimen as a standard for village-based prevention of dehydration, with UNICEF packets used at fixed health facilities for cases of moderate dehydration. The goal in both countries is to have mothers use ORT early in an episode of diarrhea and to seek help if needed. Other critical messages pertain to breastfeeding, weaning, food preparation, personal hygiene, and sanitation practices. Figure 1 illustrates the level of campaign activity in each country during the first year

Early results of the evaluation, which is being conducted by Stanford University's Institute for Communication Research, are encouraging. The Stanford study includes a panel study of some 750 to 800 mothers, implemented in waves over a two year period. The panel study is supported in both countries by a prepost mortality, and health worker study. In Honduras, an ethnographic study has been added. Results in Honduras show that, after one year, 48% of the audience reported using Litrosol to treat diarrhea at least once. During the same period, recognition of Litrosol as a diarrheal remedy went from 0% to 93% of the population. Of those reporting to use Litrosol, 94% used a full liter of H₂O 95.7% used all the packet to make the mixture; 59.7% gave the whole liter to the child, 36% discarded the leftover solution; and 9% used Litrosol for the full three days (most used it for one to two days only). Results in The Gambia show that, after eight months of campaigning, 66% of mothers knew the correct 8-1-3 water/sugar/salt (WSS) formula. Forty-seven percent of mothers reported using WSS formula to treat their child's diarrhea.

More answers are nonetheless needed. Will mothers continue to use ORT? What age child is being treated with ORT? If the mothers are making mistakes, what kinds of mistakes are most common? What continued inputs will be necessary to sustain these levels of use? These and other questions are being examined not that the project staff feels that several lessons can now be drawn from the experiences in these two countries that will help planners of similar programs elsewhere.

Some Lessons

Lesson #1: Coverage, timeliness, and credibility - you need all three

If the goal is to produce widespread use of ORT in unsupervised settings, then three factors are critical: coverage, timeliness, and credibility. Coverage is the ability to reach many people quickly, and it is best achieved through the media. In most countries, this means radio. Timeliness, or the availability of specific mixing and administration reminders at the moment they are needed, is best accomplished by print and graphic material - specifically, a packet label and a one-page graphic flyer. Credibility or the acceptance of ORT by patients, is best achieved through the full support and use of ORT by recognized health professionals in the country - physicians, nurses, and health workers.

Lesson #2: Have a plan which includes everything. You can't have a piecemeal program.

To bring these three elements together, a comprehensive plan is needed. It must include:

- an adequate supply and distribution system for oral rehydration solution.
- an explicit linkage between what health providers, radio, and print media tell the public a single set of simple, noncontradictory messages on how to mix ORS, how to give ORS, and how to know when ORS is not working.
- a training program for health providers which emphasizes ORS teaching skills as well as ORT administration.
- a radio broadcast schedule timed to reach specific audiences.
- a series of simple print reminders of key skills that accompany each packet.

Lesson #3: Base the plan on field research.

An effective plan must be based on field research of existing audience practices and beliefs. A few key questions that need to be answered in this research are:

- How will mothers mix the solution? What containers are available?
- Where can mothers obtain packets if they can't get to a health center?
- Whose advice do mothers take about diarrhea?
- What do mothers want a remedy for - the loose stool, appetite loss, weakness; what do they most worry about when a child has diarrhea?
- What are mothers doing now - purging, giving teas, withholding food, etc. - and why do they feel these are appropriate methods?

- What type of print material would be most valued and used - pictures, words?
- Why do mothers listen to radio; whom do they trust as radio announcers?

There are many other questions which also need answers, but these key areas will trigger responses critical to developing a sound plan.

Lesson #4: *Correct the plan as required - keep it flexible.*

Monitoring the campaign is essential. Regular visits to villages, watching how ORT is being used or misused, systematic interviews with health workers and mothers will expose weaknesses impossible to predict otherwise. Once discovered, correct these mistakes; do not try to argue them away. Mistakes are normal, almost inevitable, and they can be corrected if they are admitted.

Lesson #5: *Emphasize simplicity*

Avoid the temptation to complicate matters. Make the advice to mothers simple - use only a few print materials; do not ask health workers to do much more than they are already doing; and repeat a few good radio programs over and over rather than making dozens of new ones.

(From: ICORT Proceedings. pp. 174-177.)

Session 43, Trainer Attachment 43D: Pros and cons of ort in the village

While the positive aspects of village ORT are overriding and of most importance, the purpose of this exercise is to generate a list of the potential problems (or "CONS") of unsupervised and poorly taught ORT so that PCVs can plan ways to overcome these problems before they arise.

Examples of things that should appear in the "PRO's" list include:

- self-reliance
- positive affect on low cost of ORT ingredients vs. hospital care
- immediate initiation of treatment, etc.

Examples of things that could appear in the "CONS" list differ according to country and include:

- Different and conflicting information in the media about how to prepare sugar-salt solution (e.g.: on the radio; in newspapers; in pamphlets; on billboards; etc.)
- Different and conflicting information given by different health workers.
- Unspecified sizes of containers given in instructions
- Specified sizes of containers in instructions aren't available
- The only containers available are the wrong size (for example, people don't know what a liter is)
- Mothers have never had opportunities to practice doing ORT with supervision and are afraid to try something new

- Instructions regarding times of administration aren't culturally appropriate (e.g.: every 2 hours, when no one has a watch or clock)

- The child begins to vomit and no one has given the mother instructions about the child vomiting so she stops giving ORT

- The child has no appetite initially, so the mother doesn't want to feed him and has never been given instructions to do so

The mother has been told to feed the child regardless of appetite and so force-feeds the child

The causes of the child's diarrhea aren't removed, so it can happen everyday' (doing ORT is just a "band-aid" measure)

There's no reinforcement of positive practices done by the mother in unsupervised settings

There's no explanation or promotion of preventive measures (e.g.: handwashing often isn't mentioned or reinforced)

Siblings are usually the ones that are taking care of younger brothers and sisters and they aren't taught how to do ORT, nor can they learn how to do it by following pictures.

Session 44: Logistics

Session 44, Handout 44A: Methods for estimating supply needs

Session 44, Handout 44B: Determining logistical needs

Session 44, Trainer Attachment 44A: Determining logistical needs answer sheet

TOTAL TIME: 2 hours, 30 minutes

OVERVIEW

The availability of personnel, facilities, supplies and equipment is very important to the success of any efforts designed to deliver health care to a community.

If people are encouraged to change their health practices and then this change is not supported by providing appropriate or adequate resources, they will be extremely frustrated and may well resist these programs in the future even when supplies are available. Thus it is extremely important that the project plan specifies the necessary logistical support and that supplies and equipment are available during the implementation phase of the project.

In this session, participants are introduced to and practice a methodology for estimating necessary resources for implementing CCCD projects. They also develop a time frame for procuring the needed logistical supplies (resources).

OBJECTIVES

- To estimate supply needs for a CCCD project. (Steps 1-3)
- To develop a schedule for procurement of resources. (Step 4)

RESOURCES

Handouts:

- 20B Health Education Project Planning Worksheet (from Session 20)
- 44A Methods for Estimating Supply Needs
- 44B Determining Logistical Needs

Trainer Attachment:

- 44A Logistical Needs Answer Sheet

MATERIALS

Newsprint, markers, pens, calculators (optional)

PROCEDURE

Trainer Note

The emphasis of this session is logistics, which can be described as the system for obtaining, maintaining and distributing supplies and equipment. The participants will learn specific techniques for estimating quantities of supplies needed for CCCD activities based on current and future projections.

Up to now, participants have developed a health education project plan, which includes time frames for implementing and evaluating their work. As part of this planning process, it is essential to develop a schedule for the procurement of the resources that are needed to accomplish the plans.

Working with their Health Education Project Planning Worksheet, they will develop a schedule for the procurement of supplies that is coordinated with the implementation of their elaborated plans.

Step 1 (10 min)

Logistical Planning

Tell the group that a frequent obstacle to achieving project objectives is that of not having the necessary and/or adequate resources (people, supplies, money, facilities) to carry to completion the planned project. This is often caused by the fact that an adequate estimate of the resources needed to implement the project has not been made. Ask them to reflect for a moment on what general questions they had to ask or information they needed to know when developing their health education project plans. Then have them brainstorm a list of specific questions they need to answer in order to estimate the amount of supplies (i.e., vaccines, ORS packets, malaria tablets) needed for starting up or expanding CCCD projects.

Ask one person to record these questions on newsprint.

Trainer Note

For estimating the quantity of supplies needed for starting up or expanding a CCCD project, we need to address the following questions:

- Who does the program service? (i.e., Who is the target population?)

- What is the size of the target population?
- What percent of this total target population is the program intended to reach?
- Based on the immunization schedule and usage of service for treatment of diarrhea and malaria what are the estimated or suggested quantities of supplies to be used per intervention?
- How much of the supplies on hand are wasted?
- What constitutes an adequate reserve to account for wastage and/or unexpected increase in use of service?

Tell participants that the importance of each of these questions will be well understood by the end of this session.

Step 2 (30 min)

Estimating Quantities

Distribute and review with the group Handout 44A (Methods for Estimating Supply Needs). Have them focus on the terms next to each roman numeral and discuss how these terms relate to the list of questions they developed in the previous step. Tell them that the steps and methods listed in this handout are ones that they might find useful to follow whenever they need to estimate the resources needed to meet their stated project objectives.

To help them feel comfortable with this form write the following sample problems on newsprint and have the participants answer the problem. Ask for two volunteers to show how they calculated their answers.

Sample problems:

- a) In Tivaouane, the population at the time of the last census was 15,000. That census was taken in 1980 and it is now 1985. The annual growth rate is 2%. Compute a current population.
- b) Your district has a current population of 30,000 people. Estimate the base amount of measles vaccine needed for one year to obtain a vaccination coverage of 30% of all children 0-11 months of age. Next, state how much you would order.

Discuss any problems or questions they had in using the handout to solve the sample problems.

Trainer Note

The answers that they should arrive at are:

a) $15,000 \times 1.104 = 16,560$

b) $30,000 \times 0.04 \times 0.30 \times 1 = 360 \text{ doses} = \text{Base Amount}$

$360 \times 1.42 \times 1.30 = 665 \text{ doses} = \text{total supply of measles vaccine needed for one year.}$

Step 3 (45 min)

Determining Logistical Needs

Distribute Handout 44B (Determining Logistical Needs). Have the participants divide into small groups and work for 30 minutes to calculate the annual supply needs for providing necessary PHC services to a community with a total population of 10,000.

Reconvene the group after 30 minutes and ask for one person to present their group's answers for the total supplies needed for each category listed on the worksheet. Ask if any group had different answers than those presented. If so, discuss the reasons and/or problems that led to the different answers. An answer sheet is provided in Trainer Attachment 44A.

Tell participants that these methods can also be applied to calculating the amount of other needed resources (needles, syringes, manpower).

Step 4 (40 min.)

Ordering and Scheduling the Delivery of Supplies

Explain to the group that knowing the amount of supplies needed to implement a CCCD project for one year is obviously not enough to ensure a successful project. Health personnel need to coordinate the timing of supply delivery with the implementation of the other components of their project plan.

Ask the participants to quickly brainstorm a list of factors to consider when planning to order supplies.

Next, ask the group to take out their health education planning worksheet and develop a schedule for the procurement of the resources needed (i.e., ORS packets) to accomplish one of their activities.

Trainer Note

Some of the factors the participants should mention when discussing the ordering of supplies are:

- Frequency of delivery which depends on:
 - availability and cost of transport
 - availability of storage space (especially cold chain equipment)
 - shelf life of the commodity
- Projected utilization of services which depend on:
 - Seasonal factors which affect clinic attendance
 - Health education efforts to motivate people to utilize the service offered at the clinic
 - Seasonal differences in disease incidence (in particular malaria, diarrheal disease)
 - Increase or decrease in population covered by the health center
 - Epidemics
- Order size and interval

When discussing their supply delivery schedule, tell them to develop a schedule which shows, at a glance, how the time frame for ordering and expected delivery dates are coordinated with the planing and implementation of their health education activities.

If the participants seem to be having a problem with developing a time line for the implementation of the various activities, in particular the sequencing of health education activities, you might consider presenting for discussion the following time line.

SCHEDULE FOR PROCUREMENT OF VACCINE AND COLD CHAIN EQUIPMENT & VACCINE-AND-EQUIPMENT TRAINING

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Equipment	Order				Delivery	Installation			
Training		Plan			Schedule	Conduct			
					Session	Training			
Vaccine						Order	Delivery		

Work-Plan Format

Equipment	Order Placed	JAN 31
	Delivery Expected	MAY 10
	Equipment installed	JUN 1
Training	Plan Training	FEB 1 - MAR 1
	Schedule Sessions	MAY 10-20
	Conduct Training	JUN 1 - JUN 31
Vaccine	Order Placed	JUN 2
	Delivery Expected	JUL 5

Step 5 (15 min)

Presenting their Schedule

Ask one or two members of the group to present their supply procurement schedule. Discuss and critique each schedule as to:

- The time frame for ordering and receipt of supplies (i.e., is it realistic based on the factors mentioned in Step 4, pertaining to expected frequency of delivery, utilization of service?)

- How well it is coordinated with the implementation date of the activity it is needed for.
- Whether the schedule clearly shows how the sequencing of the activities relate to one another.
- Whether limited storage space would necessitate the staggering of orders.

Close this session by asking someone to summarize:

- why logistical planning is important
- when it should be done, and
- how the methodology taught in this session can be useful in calculating supply needs.

Trainer Note

The main points that should be brought out in this summary are:

- Logistical planning is important to ensure that you have the resources needed to conduct your project at the time pre-established.
- Many factors, such as roads and lack of transport, need to be considered well in advance to ensure that you have your needed supplies.
- Resource planning needs to be done when you are developing your project plan to ensure that the delivery of supplies is coordinated with the timing of your activity.
- The methodology presented in this session provides a basis for knowing how to calculate the amount of supplies you need, based on the specific target population and overall time frame for the activity.

Session 44, Handout 44A: Methods for estimating supply needs

I. Define or Estimate Target Population

Target Population are the people for whom service is primarily intended. To define the target population one must often determine the total population first.

A. There are two ways that the population can be determined.

1. Using Census Data

- Obtain census data and determine how many years ago that census was taken.
- Determine annual growth rate. This may be done by asking the MOH or Bureau of Statistics for this information or using the chart below as follows:
 - Read down the left column of the chart until you come to the number that is the same as the number of years since the last census.
 - Follow that row across the chart until you come to the column representing your country's annual growth rate. Note the number at that point.
- Multiply the number by the population of your health area at the time of the last census. This will give you the approximate current Population.

Number of years since last census:	Annual Growth Rate			
	1%	2%	3%	4%
1	1.010	1.020	1.030	1.040
2	1.020	1.040	1.061	1.082
3	1.030	1.061	1.093	1.125
4	1.040	1.082	1.126	1.170
5	1.051	1.104	1.159	1.217
6	1.061	1.126	1.194	1.265
7	1.072	1.149	1.230	1.316
8	1.082	1.172	1.267	1.369
9	1.093	1.195	1.305	1.423
10	1.105	1.219	1.334	1.489

Example:

To find the total population for 1985 given 1980 census data (population 9,058) and a 2% annual growth rate do the following:

1980 population (x) 2% annual growth rate for past 5 years = 1985 total population

9,058 (x) 1.104 = 10,000

«««Valoare a indentului diferita de cele prezente in lista actuala»»»«««Nivel inferior lui 2 pe indent <> de 0»»»2. Estimating Population

- Multiply the total number of households by the average family size.

Example: Given the fact that there are known to be 1,667 households with an average of six persons living in each household you do the following:

1,667 households (x) 6 people/household = 10,000 people living in area

II. Determine Target Population within the total population

A. Define your targets in terms of age for whom service is intended.

B. Find or estimate the size of the target population using the chart below if the number of people in the target group is known.

Percentages of the Population in Various Age Groups in West Africa

Age Group	Percentage of Total Population
0-11 months	4.0 (or crude birth rate = number of live
12-23 months	7.5 births during year ÷ estimated mid
2- 5 years	9.5 year population)
15-45 years	- male 22.0
	- female 21.0 (pregnant women = 4.0)

1. To estimate the target population do the following:

Percentage of total population in target group 0-11 months from above chart	(x)	Total Population	Size of Target Population
4%	(X)	10,000	400

III. Estimate Expected Coverage or Numbers of Services to Be Provided

A. The coverage objectives are usually detailed in the local plan. When offering a new service, low coverage can be anticipated at the start. To estimate coverage you do the following:

Target Population (from Part JIB)	(X)	Percent Coverage (from local plan)	Number of Services To Be Provided
400	(X)	30%	120

IV. Determine Quantities to Be Used per Treatment

A. Following is an example. You should follow the policies of your country.

Supply	Quantity	Comments
ORS Packets	2 packets per episode (x) 2 episodes per child per year	
Chloroquine (prophylaxis)	84 tablets per pregnancy	Three 100 mgm base chloroquine tablets per week for 28 weeks
Chloroquine (presumptive treatment)	Six 100 mgm tablets per episode per adult (quantity for children varies)	
Measles	1	

BCG	1	
DPT	3	
Polio	3	
TT	2	

V. Calculate Basic Supply Needs

A. Basic supplies can be calculated after you have completed the above steps and determined the quantity per full treatment. An example for calculating DPT needs is as follows:

Number of Services to be Provided (from Part IIIA)	(X)	Quantity per Treatment	Base Amount of Vaccine Needed
120	(x)	3	360

VI. Calculate Additional Amount Needed for Reserve Stocks and to Replace Wastage

A. The total amount to be ordered should be greater than the base amount because there will be some wastage and also there will be some unpredictable factors (delayed delivery of supplies, epidemics, reduced or increased attendance at clinics).

1. To calculate the wastage factor for a particular service area divide the number of doses wasted by the number of doses used.

Doses wasted from a 100 dose vial of	÷	Doses Administered from that Vial	Proportion of vaccine Doses Wasted
30	÷	70	0.42 + 1

2. The following factors for calculating wastage can be used if you have no idea how much is wasted.

Medical Supplies	Wastage Factor*
BCG	2.00
Measles, Polio	1.42
DPT, TT, ORS	1.42
Chloroquine	to 11

* Note the 1 has been added to the percentage number to simplify the arithmetic calculations

B. To determine the amount of DPT vaccine you need to order for one year, compute as follows when only considering wastage:

Base Amount	(x)	Wastage Factor	Base Amount + Allowance for Wastage
For DPT (using results from Part VA) 360	(x)	1.42	511

C. Reserve Supplies

Estimates for reserve supplies should be based on the likelihood that unexpected factors might reduce stocks to a level at which work will be forced to stop. The main factor in determining the quantity of reserve stock is the amount of time required to obtain new supplies. 30% has been used to estimate the final calculated supply needs.

VII, To calculate total supplies needed to accomplish your program objectives do the following:

Base Amount + Allowance for Wastage	(x)	Reserve Factor	Total Supply* DPT Vaccine
511	(x)	1.30	664

* This is for one year

(Adapted From: CDC/CCCD Draft Training Materials, Logistics)

Session 44, Handout 44B: Determining logistical needs

Calculate annual supply needs for polio and measles vaccines, tetanus toxoid, oral rehydration salts packets and chloroquine tablets for a population of 10,000. Use the six steps you have just discussed. Some information has been given below. To obtain the other information you need, refer to the handout 44A where the steps are described and formulas and factors for calculation are given.

Determining logistical needs

	ORS Packets	Chloroquine for Children	Chloroquine for woman of Childbearing age	DTP	Polio	Measles	TT
I. Target Population	Children under 5 years of Age	Children under 5 years of age	Pregnant woman	Children under 2 yrs of age	3-23 months	9-23	Pregnant woman

II. Size of Target Population					1,150	1,150	400
III. Estimate Coverage	25% of the cases receive treatment	50% of the cases	50%	40%	40%	50%	30%
IV. Determine Quantities per Standard Treatment							
V. Calculate Base Amount of Supplies Needed							
VI. Reserve Factor and Wastage Factor							
VII. Total Annual Supplies							

Calculation similar to those given in this exercise are useful if new programs are established, if coverage rates are expected to change or if target population are expanded. If no program changes are made or anticipated, actual supply needs may be estimated from past records.

(From: CDC Draft CCCD Training Materials: Logistics)

Session 44, Trainer Attachment 44A: Determining logistical needs answer sheet

Calculate annual supply needs for polio and measles vaccines, tetanus toxoid, oral rehydration salts packets and chloroquine tablets for a population of 10,000. Use the six steps you have just discussed. Some information has been given below. To obtain the other information you need, refer to the handout 44A where the steps are described and formulas and factors for calculation are given.

Determining logistical needs answer sheet

	ORS Packets	Chloroquine for Children	Chloroquine for woman of Childbearing age	DTP	Polio	Measles	TT
I. Target Population	Children under 5 years of Age	Children under 5 years of age	Pregnant woman	Children under 2 yrs of age	3-23 months	9-23	Pregnant woman
II. Size of Target Population	2,100	2,100	400		1,150	1,150	400
III. Estimate Coverage	25 % of the cases receive treatment	50% of the cases	50%	40%	40%	50%	30%
IV. Determine Quantities per Standard Treatment	2 packets per use	1 table per child per episode	3 tablets per wk for 28 wks or 84 tablets	3 doses	3 doses	1 dose	2 doses
V. Calculate Base Amount of Supplies Needed (II x III x IV)	1,050	1,050	16,800	1,380	1,380	575	240
VI. Reserve Factor and Wastage Factor	1.3	1.3	1.3	1.3	1.3	1.3	1.3
VII. Total Annual Supplies (V x VI)	1,938	1,515	24,242	2,547	2,547	1,061	443

Calculation similar to those give in this exercise are useful if new programs are established, if coverage rates are expected to change or if target population are expanded. If no program changes are made or anticipated, actual supply needs may be estimated from past records.

(Adapted From: CDC Draft CCCD Training Materials: Logistics)

Module 7: Training of trainers

Behavioral objectives

Session 45: Assessing group needs and setting the training agenda

Session 46: Adult learning theory and the experimental model

Session 47: Task analysis

Session 48: Behavioral training objectives

Session 49: Training techniques and materials: Applying experiential learning

Session 50: Group dynamics

Session 51: The role of the trainer

Session 52: Evaluating of training programs

Session 53: Training design: developing a two day workshop

Session 54: Planning and facilitating a practice session

Session 55: Adapting training materials

Behavioral objectives

By the end of this module the participants will be able to:

1. Conduct a task analysis of one aspect of the technical program that identifies the knowledge, skills and attitudes required to carry out the task as described by an in-country PCV or resource person.
2. Write behavioral objectives for the tasks from the task analysis such that they include the four components of behavioral objectives presented during Session 48.
3. Describe the role of the trainer in terms of trainer behaviors and learner needs based on the three different kinds of learners from the Training Styles Inventory conducted in Session 51.
4. Design a two-day skills workshop for community or mid-level health workers that includes a description of measurable objectives, standards of performance, sequenced schedule, participatory/experiential activities, start-up and closure activities, and opportunities for sharing, peer teaching and individualized learning.
5. Explain the purposes and functions of four kinds of training evaluation and cite specific examples of each one as used in this program and for use in future workshops.
6. Design and facilitate a training session for health workers that is experiential and includes the steps of the experiential learning model.
7. Adapt training materials for use in a situation or with a group different from the one for which they were intended. The adapted materials must "pass" the items on the adaptation checklist established by the group.

Session 45: Assessing group needs and setting the training agenda

TOTAL TIME: 2 hours

OVERVIEW

Adults learn most effectively in a setting that recognizes and respects their individual differences; provides for open communication and critical examination of issues; and assumes that individual learners are responsible for making choices within the total learning situation. The module on Training of Trainers (TOT) is designed to create this type of experience for participants, assuming that they will subsequently offer a similar learning environment to their groups. The TOT Module is intended for Volunteers who will be designing, coordinating, and facilitating training workshops for community and mid-level health workers.

In Session 45, participants become acquainted with each other, begin to establish identity as a group, and assess their needs for skills in training design and facilitation. The session provides an additional pretest for measuring training skill strengths and weaknesses by having participants design and implement a training session, and afterwards, process the experience to identify specific needs, and expectations. Later the trainer provides an orientation to the goals, sequence, and design of the module. Participants can see how close the trainers have come to anticipating learning needs and where if necessary to adjust the agenda.

OBJECTIVES

- To design and implement a training session that meets an objective agreed upon by the group. (Steps 1-4)
- To identify specific training skills and knowledge needed by participants to design and conduct future training courses and workshops for health workers in PHC. (Steps 2-5)
- To review the objectives and design of the program and, if appropriate, make adjustments to respond to relevant group needs. (Step 6)

RESOURCES

Objectives for TOT (prepared by the trainer based on the behavioral objectives found at the beginning of this module)

Handout:

30B Road to Health Chart (from Session 30)

MATERIALS

Newsprint, markers, schedule of TOT Module.

PROCEDURE

Trainer Note

If the TOT Module is being used for in-service training, this session is essential for identifying participants' expectations and setting an appropriate agenda. If the module is used in pre-service training along with the other CCCD technical modules (Nutrition, Disease, etc.), then you may elect to simply administer the relevant TOT pretest questions and begin the actual TOT with Session 46.

In Steps 2, 3 and 4 of this session, participants will design and carry out a short training session which serves as a pre-test of some of the knowledge and skills covered in this module. This "session within a session" does not assess all of the skill areas of TOT. For example, it doesn't address conducting a task analysis or writing behavioral objectives, but it does give the participant and the trainer an idea of how much the group knows and can do in session design and implementation. During this pre-test activity the trainer should help the group agree on a learning objective that they would like to accomplish and also assist them in locating any resources or materials they may need. After that, the trainer takes a back-row seat and allows the group to appoint a leader from among themselves and proceed on in planning and doing their session.

Step 1 (Optional) (15 min to 1 hr.)
Ice-Breaking and Setting the Climate

If participants are beginning their training program with this module, conduct an "Ice-Breaking" activity with the group. For ice-breaker ideas, refer to Session 1, Module I in the manual, and to Handout 53C in Session 53 of this module. Whichever ice-breaker activity you choose to do with the group, have participants at the end discuss it as a training technique for bringing people together and helping them learn more about each other.

Step 2 (15 min.)
Introducing the "Session within a Session"

Explain to the group that they will now participate in an activity which will help them and the trainer assess their knowledge and skill levels in designing and implementing a training activity and in working with a group.

Tell the group that they will plan and carry out a "session within a session". Explain that the session will accomplish this learning objective: "to identify at least two methods for training community health workers (CHWs) to use the Road to Health Chart as an instrument for recording data on illness and growth, and for early detection of diarrhea." Afterwards, the participants will use the experience provided by that session to assess their own abilities as trainers and group members.

Present and explain the training design format found in the following trainer note below and ask participants to use it as a guide for accomplishing their session. Begin using the format with the group by reviewing, discussing and agreeing on the session objective.

Trainer Note

Design Format for a Training Session:

1. Identify and agree upon an objective that is relevant to the group and can be accomplished in a

short 20-30 minute session. An example is "to identify at least 2 methods for training CHWs to use the Road to Health Chart as an instrument for recording data on illness and growth, and for early detection of diarrhea".

2. Identify resources and materials. These may be human resources, (e.g., Who in the group has been a trainer previously? Who has technical expertise with the Road to Health Chart?). Or they may be training materials such as a poster-size chart, case studies describing common problems in teaching CHWs to use the chart, etc.

3. Design or select an activity or activities to meet the objective. Examples include small group tasks with recommendations to the large group at the end, role play, brainstorming followed by analysis and consensus, and so forth.

4. Carry out the Activity. Actually do the activity selected in the previous step.

5. Evaluate the activity to see if the objective has been met.

6. Discuss the effectiveness of the process (Steps 1-4).

- Was the objective relevant to the group and attainable?
- Were the resources helpful/appropriate?
- Was the selected activity effective for accomplishing the objective?
- Was there active participation by all, some, or just a few people during the session?
- Were effective facilitation skills demonstrated? What were some examples?
- How easy or difficult was it to work as a member of a group on this task?

Please note that the session objective offered here is only an example. The trainer and participants should agree on an objective that is important and relevant for them otherwise there is little motivation or reason to achieve it. You may want to suggest two or three objectives and let the group select the one they want most.

Step 3 (40 min.)

Identifying Resources and Selecting Activities for the Session

Following the Design Format as a guide, help participants identify resources from within the group (e.g. participants with training experience to lead the session, participants with experience in height/weight/age charts to help with important technical information, those who have experience adapting materials, etc.). Also, make available any materials pertinent to the session objective (e.g., a poster-size Road to Health Chart, sample health histories, Helping Health Workers Learn, and so forth)

At this point, ask the group to select someone to act as the facilitator and have that person lead the group until the "session within a session" is over. Ask the group to continue on with the design format, (Step 3, selecting the activity).

Trainer Note

When a facilitator has been chosen, the trainer should physically move away from the front of the group and keep a low profile for the remainder of the mini-session. Assist the group only when solicited.

Step 4 (25 min)
Conducting the Session

Have participants carry out the session. Assist them only to the extent that they request your help.

Step 5 (20 min)
Assessing the Session for Participant Needs

Ask participants to evaluate the session they just designed and conducted. Have them respond to the questions listed under #6 on the design format.

Have all participants reflect on the experience they just had in designing and implementing a training session. Ask them to use this experience as well as any other background in training to identify specific areas of skill and knowledge that they feel they need to work on during the TOT. Have them jot down those needs on notebook paper. Also ask them to list one to three areas of training skills where they feel strong and could act as a resource to others. Have each person share with the group one need and one area of strength. Write these on a master list in front of the group.

Trainer Note

Encourage participants to use the "session within a session" to identify their strengths and weaknesses both as individuals and as a group vis-à-vis the design and implementation of training sessions and workshops.

Step 6 (15 min)
Checking Needs with Training Objectives

Distribute the TOT Behavioral Objectives you have prepared and a schedule for the module. Ask participants to look at the objectives and sessions planned and compare them to the newsprint list of needs and strengths among group members. Help the group see where specific needs will be met and where the program may be modified to account for other areas on their list that do not appear in the design.

Finally, identify, with the help of the group, specific opportunities for peer teaching and taking advantage of individual expertise among participants.

Session 46: Adult learning theory and the experimental model

Session 46, Handout 46A: Educational and competency-based approaches

Session 46, Handout 46B: Experiential training methodology

Session 46, Trainer Attachment 46A: A comparison of clinical staff and community health workers

Session 46, Trainer Attachment 46B: Principles of good community health worker training

TOTAL TIME: 2 hours, 30 minutes

OVERVIEW

Understanding the conditions under which adults learn best is paramount to the design and implementation of training programs for health workers. Participants have already learned the basic concepts of adult learning theory and the experiential learning model during Session 23 of the Health Education Module. At that time, they examined the issues in light of their own learning experiences as adults. Now they use that basic framework to consider what kinds of training are most appropriate for two types of participants - the mid-level health worker and the community health worker. In addition to examining the overall training climate, they compare educational and competency-based approaches. Later, the group takes a more in-depth look at the use of experiential learning in the context of health worker training and discusses constraints that culture may place on its potential applications.

OBJECTIVES

- To identify characteristics of the mid-level health worker and the community health worker including job, community involvement, academic preparation, and other relevant factors. (Step 2)
- To design a training setting for one of the two types of health workers that takes into consideration the characteristics of the health worker and the conditions under which adults learn best. (Steps 3,4)
- To compare educational and competency-based training approaches and determine which is more appropriate for the local situation. (Step 5)
- To describe the advantages and disadvantages of using experiential learning in training and identify specific cultural constraints related to its use with health workers during workshops. (Steps 6,7)

RESOURCES

A Trainer's Resource Guide, Peace Corps

Handouts:

- 46A Educational and Competency Based Approaches
- 46B Experiential Training Methodology

Trainer Attachment

- 46A Comparison of Clinical and Community Health Workers
- 46B Principles of Good Community Health Worker Training

MATERIALS

Newsprint and assorted colored markers

PROCEDURE

Trainer Note

This session is designed to occur sometime after participants have had Session 23 (Adult Learning and Non-formal Education Techniques). Session 23 provides participants with a basic framework for understanding adult learning theory and the experiential learning model. Here participants take that learning and apply it to future training courses and workshops they may plan and conduct with mid-level and community health workers.

If Session 23 is not included in the participants' training course, be sure to cover the major points from that session and distribute to the group Handout 23A and Trainer Attachment 23F.

Step 1 (10 min)

Reviewing the Conditions that Help and Hinder Learning

Post the list of "conditions that help or hinder learning" generated by the group during Step 3 of Session 23. Ask someone to give a short summary of the points and check-in with the group to see if they want to make any changes based on recent experience.

Step 2 (20 min)

Describing the Mid-Level and Community Health Worker

Explain to the group that during this session they will apply these principles to the context of planning and conducting workshops with host country health workers. Ask the group to consider what they've learned thus far about the mid-level health worker (clinical staff) and the community health worker. Have the group describe in comparison form on newsprint each of these two general types of health worker. Their list should resemble the one in Trainer Attachment 46A (A Comparison of Clinical Staff and Community Health Workers) but with more cultural-specific descriptions. If participants do not have enough information to generate the comparison, give them the Trainer Attachment as a handout and help them add more information to make the list reflect health workers in the host culture. Afterwards, ask the group to decide if the conditions for learning (from Session 23) are relevant for these health workers as well as themselves. If not, have them discuss why.

Step 3 (30 min.)

Training Settings for Two Types of Health Workers

Divide the group in half. Ask each team to use the conditions for learning and characteristics of the health workers to define and discuss the training setting they would create for one of the two types of health workers. Have half of the group create a setting for mid-level workers, the other half for community workers. Ask them to consider and describe:

- the training location
- the trainer
- the training climate
- how learning takes place

Tell the teams to be prepared to present their setting to the other group. Encourage them to be creative and use symbols, words, pictures, and/or any other method to "draw" a picture of the setting on newsprint.

Step 4 (20 min.)

Comparing Training Settings

Bring the teams together and have them share their training settings with each other. Ask them to compare the similarities and differences and discuss:

- What are the differences a result of?
- What cultural factors affected your training setting? Why?
- In what ways does the training setting reflect the adult learning principles? Where doesn't it? Why?

After the group has finished the comparison, ask them to look at both of the settings and identify those elements or conditions that seem to be appropriate for training either type of health worker (i.e., which elements would almost always be a part of training situations). Underline or star these items.

Trainer Note

Trainer Attachment 46B captures a number of "generally-agreed-upon principles of good community health worker training". Use it to draw out ideas during this discussion.

Step 5 (15 min)

Examining Educational and Competency-Based Approaches to Training

Distribute Handout 46A (Educational and Competency-Based Approaches) and give participants time to read it. Ask them to discuss the two training approaches described in the article in light of the characteristics of health workers and training settings they've identified. Help participants understand the competency-based approach by providing examples of competency-based learning in this training program. Have the group refer back to their training settings and decide what changes they might make, if any, based on the new information. Also ask participants to identify areas of training issues where they feel unclear and need more information.

Trainer Note

An alternative here to reading the handout would be to give the group examples of the training approaches, one obviously educational, the other obviously competency-based. Ask participants to compare the two and elicit a list similar to the one in the article. Also have them give other cases from their own experiences in the past. Then provide the handout at the end of the session for further reference.

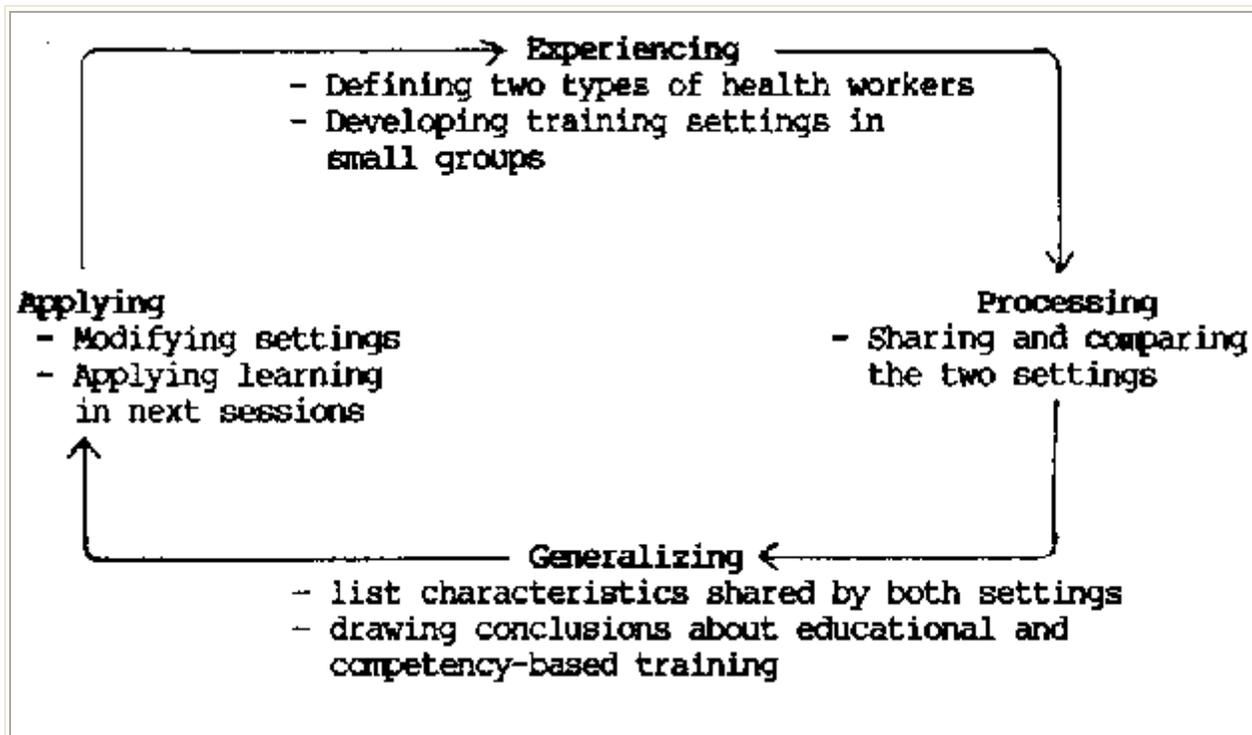
Step 6 (15 min)

Reviewing the Experiential Learning Model

Ask a volunteer from the group to draw and briefly review the four steps of the experiential learning model. Ask the group to practice using the model by breaking down the first half of this session into the steps on the model.

Trainer Note

The first half of the session corresponds to the model as follows



Step 7 (20 min)

Determining the Role of Experiential learning in Health Worker Training

Distribute and have the group read Handout 46B, (Experiential Training Methodology). Ask participants to draw on the information in the handout as well as their own experience thus far as participants in a program that is for the most part experiential. Have them discuss:

- the appropriateness of experiential learning in the training settings they developed earlier
- the function of experiential learning in a competency-based training course.
- the degree to which the culture allows for experiential learning.

Close the session by explaining to participants they will work more with experiential learning throughout this module.

Trainer Note

The idea here is to encourage participants to examine the potential for experiential learning in the future workshops they will conduct.

At the same time, they need to realize its limitations in the context of the culture and technical areas.

A few of the numerous advantages of using experiential learning are:

- it is based in the knowledge and experience of the learner.
- it is a problem-solving approach to learning and as such resembles a "real life" learning
- it permits active participation and "hands-on" experience for everyone involved, thus

facilitating skill acquisition

- it provides for all three types of learning (knowledge acquisition, skill development, attitudinal changes)
- it encourages participants to share their problems and work together to identify viable solutions
- it helps participants "learn how to learn".

Session 46, Handout 46A: Educational and competency-based approaches

Chart 3.2 Differences Between Educational And Competency-Based Approaches To Training

Educational

Organization of content around academic topics such as anatomy, physiology, and diseases
vectors

Emphasis on knowledge Limited skill practice

Use of competitive exams, mainly designed to evaluate rather than assist students

Attitude that students must adapt to the teaching method Use of "scaled-down" nursing or other
educational curricula Separation of theory and practice

Competency-Based

Organization of content around specific functions, such as identification and treatment of
diarrhea, motivation of community leaders, etc.

Emphasis on attitudes and skills Extensive skill practice

Use of noncompetitive exams to verify competencies and help students and trainers identify
weak areas

Attitude that teaching method must be adapted to the student

Use of task analysis to base curricula on specific CHW functions

Close conjunction between theory and practice, preferably taught concurrently

3B. SHOULD COMMUNITY HEALTH WORKERS BE BROADLY EDUCATED OR GIVEN ONLY SPECIFIC COMPETENCIES?

Deciding what functions community health workers should perform is clearly the first step in designing a curriculum, though much work remains after that in specifying its content. There are two general approaches, the "educational" approach emphasizing knowledge, and the

"competency-based" approach emphasizing attitudes and skills. The difference between these two is the difference between education and training as described below.

Education should be a life-long pursue whereby the individual becomes more and more aware of the known universe and his place in it. The goals of education are therefore diffuse and hard to pin down. Many types of experience contribute to the education of a person, and most of them take place outside the formal school environment. On the other hand, training instills specific knowledge, attitudes and skills in a student. Goals are clear-cut (often being termed "objectives") and methods of measurement are well-defined (66. p. 2)

Which approach is used has a great impact on CHW effectiveness.

One problem in determining whether a particular CHW course is competency-based or educational is that almost everyone favors the former in principle and thus includes skill training in the curriculum. The real question is one of emphasis and the way in which subjects are developed. Trainers themselves have usually had at least a few years of formal education (though they may have been "trained" as well), and their natural tendency is to teach others as they themselves have been taught. More specific characteristics of the educational and competency-based approaches are shown in Chart 3.2. Most courses include elements of each

While experts usually recommend competency-based training, the persistence of knowledge-based approaches is easy to explain. Factors that influence which approach is adopted are listed in Chart 3.3 Programs that start out emphasizing skills sometimes end up stressing knowledge because managers fail to follow through on details of the new approach.

The key to designing competency-based training is to identify and analyze the tasks required, and the perceived difficulty of this identification and analysis is one of the obstacles to competency-based training. The major steps are:

- to describe the job, including specific functions,
- to identify the tasks required to perform each function
- to analyze the knowledge attitudes, and skills workers will need for each task.
- to develop a curriculum and day-to-day schedule, and
- to prepare lesson plans *

* These steps are detailed in Abbatt (1), Harnar (7), and Vanderschmidt (13), as well as in several of the forthcoming MEDEX publications. (See Appendix C.)

This analysis work may be simple or very complicated, depending largely on whether a single course or many are planned (issue 2C). Use of specialist consultants may be necessary. The important point is that all steps should be given attention, since each builds on the one that comes before *

*Task analyses sometimes lead to somewhat strange topics in CHW training: for example "the trapping and besting of rats" in Burma and how to build jungle helicopter landing pads in Malaysia.

Competency-based curricula should also reflect knowledge of community behavior and resources that will affect CHW performance, including:

- Educational factors - do the people know about food, hygiene, nutrition, methods of waste disposal, and so forth?

- Social factors do the women have to look after the crops as well as prepare food and keep the home clean?
- Economic factors - do the farmers sell their produce at a market so that they can buy fertilizers and equipment?
- Cultural factors are there traditions or religious beliefs which affect either the diet or the attitude towards ideas such as child spacing?
- Agricultural factors - what kinds of foods can be grown? (l. p. 11)

Ideally this information should be gathered beforehand as part of the process of identifying community-perceived health priorities (issue 3A), but trainers should also gather information while the course is in progress. The Hanang project in Tanzania, for example, requires trainees to gather community information during breaks in preservice instruction for use in subsequent sessions. Role-playing and other participatory teaching techniques (described in issue 5A), as well as location of the course in the community (issue 7A), also facilitate appropriate task analysis.

Discussion

Competency-based training requires practice, practice, practice, until trainees master the new skills they have been taught. Many programs otherwise committed to competency-based training fail to provide enough practice, or do so inappropriately. Evaluation of training for traditional birth attendants in one Asian country, for example, showed that 85 percent of the trainers used formal theoretical models without practical work (142). For midwifery training in Sudan, on the other hand, "Each trainee is required to deliver five successful cases on the model (a simulator pelvis using a doll) before she is taken to attend deliveries in the district under the supervision of village midwives and instructors". Trainees must then do 25 supervised deliveries before they are allowed to practice on their own (591). Experienced persons may overlook some skills that need to be taught because the skills appear to be so simple. An evaluation of UNICEF-sponsored midwifery training in Niger and Upper Volta, for example, found that trainees did not know how to split aspirin or use scissors. Practice sessions had to be arranged (341). Nicaraguan birth attendants had to be taught how to remove oral contraceptives from packets, while health guides in India needed practice in taking temperatures. Even "simple" tools such as growth-monitoring charts need many skills to use correctly. Training that neglects these activities is likely to be ineffective.

There are both simple and complex ways to arrange practical work, and Appendix A provides details and examples. Major alternatives include:

- classroom practice, using participatory techniques such as role-playing, problem-solving, and so forth.
- location of training in a community setting or near a busy clinic.
- apprenticeships with existing health personnel (hospital or clinic staff or community health workers), or
- field work during intervals between formal sessions with or without close supervision.

Experience shows that practical work will not occur unless managers insist on it and follow through on logistical details including travel allowances and arrangements for supervision. Programs that emphasize community orientation (issue 1A) must emphasize community as well as clinical practice since that is the only way appropriate skills will develop.

Chart 3.3 Should Community Health Workers Be Broadly Educated Or Trained For Specific Competencies?

Approach may be educational because:

'Scaling-down' nursing or medical curricula is easier for trainers than starting from scratch with task analysis.

Trainers have generally been formally educated themselves and prefer to teach in the same manner as they were taught.

Trainees may prefer knowledge-based curriculum if it appears to broaden their career opportunities.

Practice required for skill development may be difficult to arrange and supervise.

But competency-based training should be preferred because:

Health workers need to *do* things more than to know things.

Knowledge can be difficult to translate into action; even "well-educated" professionals may have difficulty adapting to field conditions.

Education takes a considerable amount of time; competency-based training can be much briefer (issue 7B).

Over-educated community workers are likely to seek higher positions and then replacements for them must be trained.

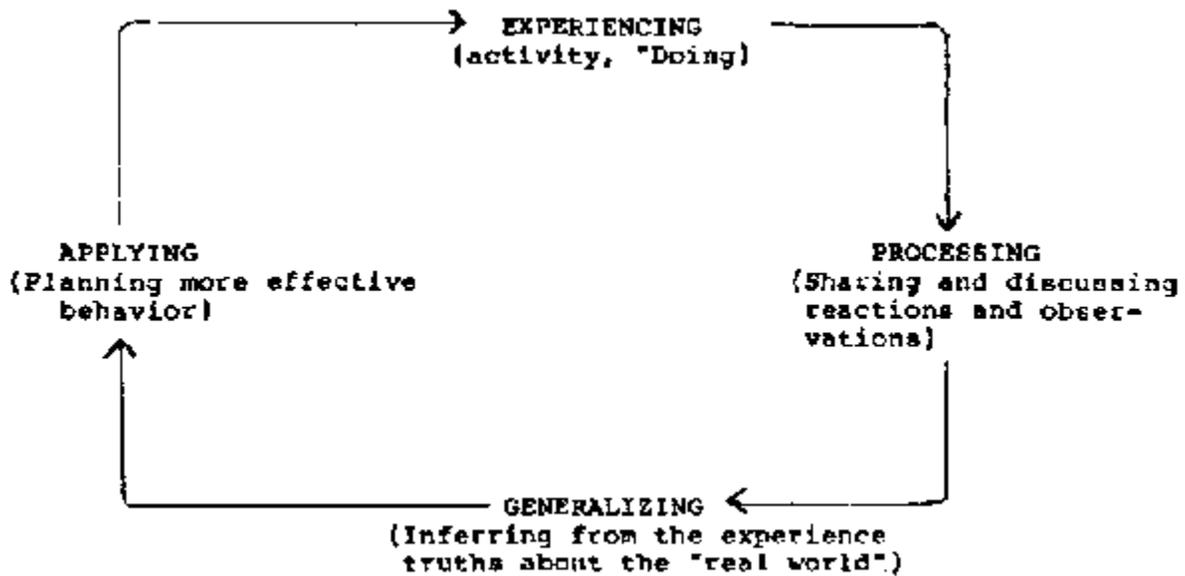
New skills can be taught as health workers master old ones and as requirements change.

(From: World Federation of Public Health Associations, Training Community Health Workers, pp. 23-25)

Session 46, Handout 46B: Experiential training methodology

The experiential training methodology presents an innovative approach toward training. Experimental methodology incorporates a flexible structure of classroom activities, simulation exercises, and actual experiences in "real life" situations. Trainees' acquisition of knowledge and skills related to their work is facilitated by the trainers. The primary role of the trainer is one of creating learning environments which are stimulating, relevant, and effective. This learner-centered, experiential approach toward training allows the individual trainees to manage and assume responsibility for their own learning.

Experimental training methodology



Experiential learning is exactly what the name implies-learning from experience. Experiential learning occurs when a person engages in an activity, reviews this activity critically, abstracts some useful insight from the analysis, and applies the results in a practical situation. The experiential process follows the following theoretical circles

EXPERIENCING

This is both the initial activity and the data-producing phase of the experiential learning cycle. Experiencing is, in fact, an inherent element of living. In experiential learning, however, this activity of experiencing is linked to a process which includes interpreting the experience, drawing generalizations from it, and determining how to make use of the learning. The experiential learning process helps individuals to minimize subjective reactions, and draw out objective elements from their experiences.

There are a wide range of activities and exercises for providing trainees with experiences from which they may extract the data information) to process and make generalizations. Individual and group activities used to facilitate the "experiencing" step include:

- role plays
- case studies
- films and slide shows
- sharing descriptions of specific experiences
- placing trainees in actual situations requiring them to react and/or perform
- allowing trainees to train one another

PROCESSING

This is a crucial step in the experiential learning cycle. During this phase, individuals share with others the specific experiences they had during the previous phase. This may happen on an individual basis, in small work groups, or in a full training group. Individuals share both their cognitive and affective reactions to the activities in which they have engaged, and during sharing, try to link these thoughts and feelings together in order to derive some meaning from the experience. Initially, the experience may or may not appear to be meaningful to the trainees,

however this phase of the cycle allows them; to think through the experience and conceptualize the reasons for coming to such conclusions. The trainer's role as facilitator is very important during this phase of experiential learning. He/she should be prepared to help the participants to think critically about the experience. In addition, it is the trainer's responsibility to help the participants verbalize their feelings and perceptions as well as draw attention to any recurrent themes or patterns which appear in the trainees' reactions to the experience. In short, the trainer's role involves helping the trainees conceptualize their experiences so that they have some concrete data upon which to draw conclusions and generalizations.

Processing establishes the context for the next phase of the experiential cycle which is "generalizing". Therefore, any experiences which trainees have during training, whether they are films, role plays, field experiences, etc., should be "processed". That is, trainees should be given time to reflect on such experiences in order to assess whether they help facilitate their learning.

Techniques used to facilitate the processing step include:

- group discussion of patterns and recurring topics and themes which arise as a result of individual experiences
- generating and analyzing data
- reporting
- interpersonal feedback interviewing
- trainees functioning as process observers

GENERALIZING

This phase involves drawing inferences from the patterns and themes which have been identified. Trainees determine how these patterns which evolved during the structured learning experience of the training sessions relate to the unstructured experiences of everyday life. In other words, the participants in the experiential process have the opportunity to identify similarities between the experiences within the training session and experiences which they can cite from the "real world". They are given the chance to see the relationships between training, their own personal goals and the life they will have after training.

Activities used to facilitate the generalizing step include:

- summarizing learning into concise statements or generalizations
- group discussions of and agreement upon definitions, concepts, key terms and statements
- individual and group response to questions like: "How do you think what you have done and learned in this session relates to your back-home activities?"

APPLYING

If learning is defined as a relatively stable change in behavior, it is the "applying" step in the experiential learning process that facilitates learners to modify future behavior. Drawing upon insights and conclusions they have reached during the learning process, trainees incorporate their learning into their lives by developing plans for more effective behavior.

Techniques and activities used to facilitate the "applying" step include:

- individual and group response to the question: "How might you use this learning to be more effective within the specific geographic and cultural setting of your assignment?"
- reviewing lists generated during preceding training sessions and making revisions which reflect new insights, plans and behavior
- modifying and/or developing plans of action, personal goals, and strategies for personal behavior modification

There are numerous advantages in using the experiential learning process. This approach permits active participation by all individuals involved. Consequently, it facilitates the acquisition of various competencies, which are best learned by "hands on" experience.

THE ROLE OF THE TRAINER IN EXPERIENTIAL METHODOLOGY

Sessions are conducted by trainers whose role in the training process is defined facilitators. As such, their primary responsibility is to provide the trainees with an affective and appropriate learning environment; and to facilitate an active process by which trainees determine and address their individual learning needs. This may be accomplished by facilitators who:

- encourage the active involvement of all trainees
- promote an atmosphere of cooperation
- provide linkages to other components of training
- assist trainees in asking linkages between each training session
- encourage trainees to constantly relate training experiences to "real life" situations
- direct trainees toward materials and human resources they may require
- make themselves available to serve as resources, but do not establish themselves as experts who dispense answers

(From: A Trainer's Resource Guide, P.C.)

Session 46, Trainer Attachment 46A: A comparison of clinical staff and community health workers

Clinical Staff	Community Health Workers
Usually trained to work under regular medical supervision	May work independently most of the time
Clinic-based; wait for client seek help	Often expected to seek out needy persons or health hazards
Work with individual clients	Work with groups as well as individuals
Work is largely curative	Often expected to do preventive and promotive work as well

Job usually full-time and salaried	Job often part-time and unpaid
Have prior primary and secondary education	Often little prior education, possibly illiterate
Trainees usually young, straight out of school	Trainees often older, with considerable work and family experience
Candidates usually available for lengthy full-time training	Trainees often have on-going work and family obligations
Identify more with their institution than with community or residence	Closely identified with community
Normally licensed and certified	Not normally licensed and certified
The information in this comparison is fairly generic and needs to be adapted to suit the realities of the culture and program.	

(From: Training Community Health Workers, World Federation of Public Health Association, p.8)

Session 46, Trainer Attachment 46B: Principles of good community health worker training

- Relate training to specific problems in the trainees' own communities and train workers in how to resolve them.
- To train community health workers for specific competencies, emphasize only the most essential knowledge, attitudes, and skills.
- To instill knowledge, use the methods trainees are most used to (even lectures), but when possible add such participatory techniques as role-playing, group discussions, and case analysis.
- To develop skills, use practice, practice, practice - especially in community settings.
- To foster new attitudes, arrange field experience for trainees (especially alongside existing community health workers), discussions, role-playing, and case analysis.
- Orient trainers not only to appropriate teaching techniques but also to community health worker functions and resources. (Ideally, trainers should have first-hand experience doing the community health worker's work.)
- Help trainers to learn from trainees. (Participatory training techniques can facilitate this.)
- Model training facilities, location, equipment, audiovisual aids, language, vocabulary, and so forth after what will be found in the trainees' future working environment.

- Adapt location of training and its timing, duration, language, vocabulary, and so forth, to trainee needs rather than to trainer convenience
- Emphasize continued skill development on the job after the initial training through regular and supportive supervision and periodic refresher training.
- Encourage community participation in selecting health priorities, in choosing trainees, and in supporting community health workers during and after training. Keep communities informed about community health worker training.
- Help new community health workers return to their communities and get a good start in their activities.
- Conduct post-training evaluation to assess the appropriateness of training methods and content, as well as to help individual community health workers, and constantly modify future courses to reflect what has been learned.

While training specialists agree almost universally on these principles, the record of following them in the field is spotty. For want of relevant training and experience, trainers often lack appropriate knowledge, attitudes, and skills. Their environment may not support innovative training approaches. Resources for training of trainers and for other reforms are scarce, in part because there are many other investments necessary in primary health care. Political pressures to train and hold large numbers of community health workers may not allow the time for desirable training improvements. It is important that training planners and designers understand these constraints, because trainers, like trainees, work in the real world and must adapt themselves accordingly.

(From: World Federation of Public Health Association, Training Community Health Workers,, pp. 4-5)

Session 47: Task analysis

Session 47, Handout 47A: Task analysis description & worksheet
Session 47, Handout 47B: Sources of information for task analysis
Session 47, Trainer Attachment 47A: Sample list of tasks

TOTAL TIME: 2 hours

OVERVIEW

An initial step in the planning of a training program is to conduct a detailed analysis of the tasks performed or to be performed by someone working in the area for which the training is being designed. From the list of tasks, trainers can derive a statement of the knowledge and skills trainees need to perform their job competently. Task analysis indicates what should be done, not merely what is done and provides the basis for developing relevant learning objectives.

In this session, participants will use their own future job assignment as health educators in PHC programs to perform a task analysis. In so doing, they not only realize the nature of the task

analysis as an essential planning tool; they also gain relevant knowledge regarding the kinds of skills required to be effective in their specific work assignment.

OBJECTIVES

- To conduct a task analysis on one aspect of the participants' role in a PHC program. (Steps 1-6)
- To examine several cross-cultural considerations in using task analysis. (Step 6)
- To state four reasons why task analysis is useful. (Step 6)

RESOURCES

- Teaching for Better Learning (WHO) pp. 15-27
- Training of Trainers Modules, Peace Corps
- One to four people currently involved in the same or similar PHC program as the participants' program.

Handouts:

- 47A Task Analysis Description and Worksheet
- 47B Sources of Information for Task Analysis

Trainer Attachments:

- 47A Sample List of Tasks

MATERIALS Newsprint and markers.

PROCEDURE

Trainer Note

If you are unfamiliar with the concept of task analysis, be sure to use the resources listed above for background information. See Session 36 (Planning and Implementing an Immunization Program) which includes a task analysis exercise and sample form which may be substituted for the one used here. Also refer to Trainer Attachment 47A (Sample List of Tasks). This attachment includes tasks that community health workers, clinic workers, supervisors and mid-level managers may perform in PHC programs.

In preparation for Step 5 of this Session, invite several people (PCVs, local health workers, other trainers, etc.) to serve as consultants during the information gathering part of the task analysis. Show the resource people Handouts 47A (Task Analysis Description and Worksheet) and 47B (Sources of Information for Task Analysis) and answer any questions they might have.

Step 1 (10 min)

Linking Community Analysis & Training

Open the session by asking participants to briefly review what they learned about needs assessment and community analysis during Session 12 (Community Analysis) and Session 17 (Identifying and Analyzing Priority Problems). Ask the group to specifically discuss the relationship between community analysis, needs assessment and skills training for health personnel working in the community.

Trainer Note

Several basic points to treat here are:

- Community analysis is a way of getting to know the people with whom you and other health personnel will work.
- Community analysis is a method of identifying and assessing the needs, specifically the health needs, of the community.
- The information gained from community analysis enables health workers to understand their general job and define specific tasks to be done to help the community meet its needs.
- The information also enables the trainer of health workers to identify the tasks that the health worker will be involved in and moreover, the skills the health worker must learn in order to perform the job tasks.

Step 2 (10 min)

Illustrating the Concept of Task Analysis

To illustrate the concept of task analysis, ask a co-trainer to work with you and present to the group a short two-trainer dialogue which describes task analysis performed during the planning stages of the CCCD training. Have the co-trainer assume the role of interviewer and you assume the role of the interviewee supplying the majority of the information. Include in your dialogue how you:

- find out about the community/site where PCVs will be working
- investigate other sources of information related to their future jobs as health educators
- write or adopt a job description with a list of major tasks
- do more investigation and observation to understand each major task
- break the major tasks down into sub-tasks.

Trainer Note

Some possible sources of information on community and job assignments for health educators in the program are:

- short community investigations with observation and interviews with community members
- observations and interviews with volunteers working in same or similar jobs
- interviews with MOH staff at national, regional, and local levels
- job descriptions, "TAC" sheets and other prepared descriptions from the MOH and Peace Corps
- relevant manuals, textbooks
- your own experience

Try to make the dialogue as lively as possible and ask participants to listen closely to the information. Note that this dialogue does not illustrate the final steps in task analysis. Those will

be dealt with later.

If one of the participants in the group has had experience in conducting task analysis, ask him or her to dialogue with you about the experience rather than doing it as described above.

One other approach which may be used here is to select a simple "fun task", for example, making a milkshake (or some local drink), and carry it through the initial steps of an analysis.

Step 3 (20 min)

Processing the Dialogue

First, ask the group to think back over the dialogue and identify the steps the trainer went through to arrive at a list of sub-tasks. Have a participant write these steps on newsprint in flow-chart fashion. Discuss the dialogue in light of the following questions:

- How well did the trainer seem to cover all the necessary steps identified?
- Were there any problems encountered and how were these dealt with?
- What were the specific sources of information the trainer made use of to gain information?
- What were some of the advantages and disadvantages of each one?
- Was there any part of the trainer's analysis that could have been left out? Why?
- What do the sub-tasks tell us about the skills a health worker would need to learn to do his or her Job?

Step 4 (10 min.)

Introducing the Task Analysis Worksheet

Distribute Handout 47A, (Task Analysis Description and Worksheet), and have the group read the explanation and look over the worksheets. Answer any questions the group might have. Ask participants to briefly discuss why it is important to bother with categorizing sub-tasks into areas of knowledge, skills, and attitudes.

Trainer Note

You may want to adapt the sample worksheet by using one of the tasks described during the dialogue earlier during the session. If so, list the sub-tasks quickly on newsprint and ask the group to break them down into knowledge, skills and attitudes.

A primary reason for dividing sub-tasks into the three areas is to specifically identify everything the health worker needs to learn to carry out that task. Later, these categories help the trainer select appropriate training methods. For example, if a trainee is learning facts or knowledge, a lecture may be an appropriate method of teaching. But if the trainee is learning a skill, he or she must get practice in doing the skill.

Step 5 (30 min)

Analyzing PHC Activities

Ask participants to divide into pairs and perform the following tasks:

- Select a task from among the PHC activities for which they've already received training.

- Using trainers, peers, and visiting resource people (PCV's, local health workers, etc.), list the sub-tasks called for in that task and break them into the categories of knowledge, skills and attitudes.

- Join another pair and exchange and read the worksheets. Discuss the process noting any major differences in approach.

Trainer Note

Encourage participants to select a task that could well be a possible area for training health workers in the field, (i.e., they should select a task that has been identified as a potential problem or new area of concern in their sites or place of work).

While participants are interviewing the resource people and filling out the worksheets, move around the room and make sure tasks and subsequent analyses are relevant and fairly on target.

Step 6 (20 min)

Large Group Discussions of Analyses

Ask participants to discuss their task analysis using these questions as a basis:

- How much information were you able to gather and how useful were the resources? What would have been the resources to use given more time and flexibility? Advantages and disadvantages of each?

- What problems did you encounter in the stages of the analysis?

- How "ideal" or how "real" is the way of doing the task you have listed on your worksheet? How could you find out if the ideal way of doing the task is attainable by the worker at this point in time?

- Did you, with the help of the resource people identify any performance discrepancies? What were some examples? Can these performance discrepancies be corrected through training of some sort? What might be some other ways of handling the need?

- How do the knowledge, skills and attitude categories help the trainer design an effective training workshop?

- What might be some cross-cultural considerations in using task analysis as a planning tool?

- How would task analysis contribute to competency-based training programs as discussed in Session 46?

- What are at least four benefits or reasons for performing a task analysis prior to designing a training workshop? (List these on newsprint.)

Trainer Note

Sometimes the task analysis will reveal discrepancies and needs which are better addressed through solutions other than training. Alternatives to training may include job aids, on the job practice, changes in the job description, transfers or terminations of the worker, training the

supervisors of the target group, or identifying and resolving problems in organization.

Some possible cross-cultural considerations for task analysis might be:

- the difference in values assigned to task areas, e.g., in some cultures having the "right" attitude is more important than performing the practical skill perfectly (and vice versa in other cultures).
- the increased difficulty in perceiving what is being done vs. what should be done (the difference between ideal and the real).

Several reasons why a task analysis should be performed are:

- Task analysis can help you, as a trainer, to determine what to teach.
- Task analysis can enable you to describe a job so that it can be taught efficiently and effectively.
- Task analysis can help the trainer identify performance discrepancies by correcting only discrepancies (instead of retraining a worker in his entire job) the trainer can achieve far better results with less training costs and time.
- Task analysis can enable you to identify only those discrepancies in performance that can be attacked through training - thus saving valuable training time.
- Task analysis can make it easier to prepare important training objectives - a starting point for an effective training program.
- Task analysis can help administrators keep job descriptions performance oriented (action-oriented).
- Task analysis can help trainer and administrators focus on the valuable actions that each worker does as part of his job.
- Task analysis can help administrators develop measures of the worker's job - thus making it more manageable.

Step 7 (10 min)

Using Task Analysis in Volunteer Work

As a final step, ask the participants to look at the list of reasons for conducting a task analysis and briefly offer examples of how they see themselves using it in their particular site and assignment. Have them touch on when they would most likely use analysis as a tool, who they might seek out to help them complete it, and what would be some of the main constraints or limitations associated with the process.

Close the session by explaining to participants that they will use their task analyses as a basis for writing objectives during the next session. Distribute Handout 47B (Sources of Information for Task Analysis) for supplementary reading.

Session 47, Handout 47A: Task analysis description & worksheet

Task analysis is a method of looking at some part of a person's job (a task) and writing down exactly what is done. This description is then analyzed to find out what students need to learn in order to do the task well. The information obtained from a task analysis helps the trainer design courses for training workers in new tasks. It also enables the trainer to pinpoint performance discrepancies - parts of a task that should be done but are not being done or not being done properly. The trainer then analyzes the performance discrepancies to determine: a) if they result from a lack of knowledge or skill, b) if they can be corrected most effectively through training and if so, c) what kind of training is most appropriate for addressing each one

Like community analysis, task analysis can be done in great detail by professional teams who may take years to do a full task analysis. But trainers can do it in much less detail and more quickly by following the sequence listed below and using the attached task analysis worksheet to compile the data.

1. Select the task
2. Decide sources of information
3. Collect the information and form the list of sub-tasks
4. Decide on knowledge, skills and attitudes that the worker needs to learn
5. Check the data against both what is being done and what should be done to insure that it is complete and realistic.

Worksheet Description

<u>Task</u>	A task is a set of logically related activities (subtasks) required to complete a job. It is a complete job element.
<u>Subtasks</u>	Subtasks are the things which happen in performing a task - the decisions, the actions, the communications. These subtasks can be analyzed and broken down into three areas of learning - knowledge, skills and attitudes.
<u>Knowledge</u>	Knowledge is what the health worker must know. It includes the recognition, comparison, correlation, integration, creation and storage of all kinds of data and information. Cognitive and intellectual learning are other words used to describe this type.
<u>Skill</u>	learning refers to the idea of repetition, practice, or habit. It includes procedures, operations, activities, techniques, and methods involving repetition. Sometimes there is overlap between knowledge and skill learning as, for example, in problem-solving. Solving a single problem demonstrates the application of knowledge. Repeatedly solving a variety of problems using a variety of knowledge demonstrates skill at problem-solving. Skill is the method, while knowledge is the data which supports it. Communication skills involving interaction with others are included in this area too.
<u>Attitudes</u>	Attitudes include values, feelings, and tendencies such as preferences, roles, likes and dislikes. A prime example of an attitude to be learned by health workers is respect for the ideas that other people have.

Sample task analysis work sheet (a)

Category of Worker: Nursing Orderly

The Task: Weighing a Baby in MCH Clinic

Subtasks	Knowledge	Skills	Attitudes
1. Ask mothers to dress babies in weighing trousers.		Dress babies in weighing trousers; Ability to explain why	Friendliness to mother
2. Place baby on scale		Reading scales Handling babies	Accuracy
3. Help mother take off weighing trousers Examine baby		Recognition of signs, malnutrition squint, asymmetry	Thoroughness
4. Record weight on growth chart		Plotting points on graph	Accuracy
5. Decide whether to comment to mother or report to more senior staff	When reports are necessary. Normal weights for babies' various ages		
6. Report or comment as necessary	What comments or reports to make	Report writing Communicating to mothers	Concern for baby's health Respect for mother

Sample task analysis work sheet (b)

Category of Worker:

The Task:

Subtasks	Knowledge	Skill s	Attitude s



(From: Abbott, Teaching For Better Learning, pp. 15-27, and Davis, Planning, Conducting & Evaluating Workshops, pp. 83-85.)

Session 47, Handout 47B: Sources of information for task analysis

When you have decided on the tasks that you wish to analyse, you should decide how you will find out about the way the tasks are done. To do this you should choose one, or preferably several, of the sources listed below: Sources of Information for Task Analysis

- A. Yourself
- B. Manuals and textbooks
- C. Observation of health workers
- D. Discussion with teachers, administrators and advisers
- E. Discussion with health workers

Suppose you wished to analyse the task of giving intra-muscular injections. You might decide that you know a lot about this and so would use yourself as the main source of information. You might then check your first analysis by using a textbook or manual. Finally you might check again that your analysis was accurate by watching several health workers giving intra-muscular injections.

The advantages and disadvantages of each source are given below.

A. Yourself

You are likely to have experience of the tasks to be analysed. Therefore you should use this experience. You are certainly the most convenient source of information, but remember you may not have all the experience or the right experience. Have you been working under the same conditions as your trainees will be working under? Have you been working with the same kind of patients? Is your method of doing the work really the best?

Often you will be able to answer 'yes' to these questions, but even then you should check your analysis with at least one of the other sources.

B. Manuals and Textbooks

Many of the tasks carried out by health workers are described in medical textbooks, in teaching manuals or in guidelines issued by the Ministry of Health or WHO. If one of these or preferably several alternatives - are studied, then a task analysis can be carried out. *But remember:*

the manuals or textbooks may be written for a different level of trainee, or the skills may be described in too little or too much detail. They may be written for different countries or different circumstances.

The books will not be written as task analyses and so you will always have to change the format and add your own experience. For example, you may have identified the task of '*monitoring the growth and development of children*'. A textbook will probably give all the background information but it is unlikely to say exactly what the health worker should do in your country. It might talk about normal changes in body weight and the need for a suitable diet. You would

have to rewrite these as a series of tasks such as weighing and recording the weight of children, or examining children for signs of malnutrition.

C. Observation of Health Workers

In this method you would choose a health worker who is regarded by his colleagues as being good at his job. You then watch the worker doing the task to be analysed. While you are watching, take notes about everything the worker does or says. At the end of the task you will probably need to ask questions about the reasons why some actions were done and what would have happened if the circumstances had been slightly different. Ideally, you should watch the same worker doing similar tasks several times, and also see other workers doing the same task. In practice, this obviously takes a long time and so may not be worth the effort.

If you have seen two or three people who follow similar patterns, then this is enough. *But remember:*

the competent worker will be especially careful to do a good job whilst you are watching. He may take unnecessary precautions. On the other hand, the worker may be generally very competent but may not be very good at the particular task you are watching. A further problem is that on the day when you are watching, the circumstances may be unusual - the patient may be particularly uncooperative. So what you see may not be typical.

A further difficulty is that you may not realise everything that is happening or the events may be too fast to record. For example, if you watch a midwife deliver a baby you will probably see her place her hand on the baby's head as the head comes out. But you will have to ask the midwife why she does this; in what directions she is pressing and how hard she presses.

D. Discussion with teachers, administrators and Advisers

It will often be helpful to talk about the task with teachers, doctors, nurses, training advisers or officials from the Ministry of Health.

In talking to one of these 'experts' do not ask them what they would teach. Instead, use a 'role-playing' method.

In this, you would start by saying - "*Imagine that you are a good health worker, working in the field. Suppose that I come to you and tell you that I have been coughing a lot. What is the first thing you would do?*" The expert might tell you,

"Well, I would start by taking a history."

This is much too vague, so you would follow this up by saying.

"Yes, but what would you actually say to me?"

The expert might then say

"When did your cough start?" and so on.

In this way you can piece together the specific actions, decisions and communications involved in the task. *But remember:*

the '*experts*' may not realise what conditions are really like in the field. They may have a good understanding of the overall job of a health worker but may not be good at actually doing it.

E. *Discussion with Health Workers*

In this method you would select a worker or a group of workers who are generally regarded as being good at their job. Then you meet them and discuss a specific task in the same way as described above, i.e. you use '*role-playing*' and talk through specific case histories.

This method has the advantage that you will be told what is practical and feasible in the field. You will also gain the experience of several different people. But remember the workers may not be using the best techniques because they may have been trained some time ago. They may also have developed poor habits after training.

From the previous sections you will realise that each method has advantages and disadvantages. Ideally, several methods should be used. It is suggested that a generally useful sequence is,

Use your own experience

Note down how you think the task is done. This will be useful in putting your own experience on paper. It will help you to organise your thoughts. It may also make you realise that there are some points where you are uncertain.



Consult the manuals

Use these to fill in any gaps in your own experience and compare what you think is correct with the textbooks or manuals.



Discussion

Discuss, with '*experts*' or workers, to decide on the correct approach, when there are differences between your opinion and what is written in the manuals.



Observation

Check your task analysis by watching the good' workers actually doing the job. Make sure that the sequence of actions you have noted down is the one actually used by the workers. Make sure you have not put down actions which the worker is not trained to do or for which he does not have the equipment.

(From: Teaching for Better Learning)

Session 47, Trainer Attachment 47A: Sample list of tasks

Community Health Workers Inform community members about preventive and curative measures

- Provide health information sessions
- Implement health education activities

Assist health staff during immunization sessions

- Identify women of childbearing age and children who should be immunized
- Notify them of when and where they can receive their immunizations
- Teach mothers how to reduce side effects of immunizations (sponge baths, aspirin)

Assess and manage diarrhea and dehydration

- Assess diarrhea
 - Assess degree of dehydration
- If no dehydration, provide preventive measures:

- Prepare homemade salt/sugar solution
- Identify locally available food and fluids

If dehydration is present, provide treatment:

- Prepare oral rehydration salts (ORS) solution
- Give oral rehydration therapy (ORT)
- Teach mothers treatment (ORT and feeding program)
- Refer severe dehydration cases to a health facility
- Follow up dehydration cases
- Teach preventive measures for diarrhea

Assess and manage malaria in pregnant women and children

- Assess fever cases
- Treat persons who have fever with an appropriate dose of chloroquine
- Refer persons who have fever, stiff neck, difficult breathing, or who do not respond to therapy to health facility
- Provide information to mothers and community leaders about treatment of fever at home
- Provide prophylactic doses of chloroquine to pregnant women

Maintain supplies

Keep records of patients treated and drugs given

Notify the local health facility of suspected disease outbreaks

Health Staff

Provide immunizations

- Discuss with mothers the need for their children being immunized
- Inform community members about immunization sessions
- Make arrangements for immunization sessions
- Schedule immunization sessions

- Screen children
- Assemble and sterilize equipment
- Immunize children
- Clean up the site in which immunization session was held
- Destroy opened vials after each immunization session is complete

Assess and manage diarrhea and dehydration

- Assess diarrhea
 - Assess degree of dehydration
- If no dehydration, provide preventive measures:

- Prepare homemade salt/sugar solution
- Identify locally available food and fluids

If dehydration is present, provide treatment:

- Prepare oral rehydration salts (ORS) solution
- Give oral rehydration therapy (ORT)
- Teach mothers treatment (ORT and feeding program)
- Refer severe dehydration cases to a health facility
- Follow up dehydration cases
- Teach preventive measures for diarrhea

Assess and manage malaria in pregnant women and children

- Assess fever and other signs and symptoms for a suspected malaria case
- Provide treatment:
 - Administer the amount of chloroquine (tablets or syrup) recommended for the patient's age or weight
 - Give pregnant women prophylactic doses of chloroquine
 - Provide information on preventive measures

Perform routine maintenance of equipment

- Keep supplies arranged neatly in a dry place
- Use oldest supplies first
- Store and transport vaccine appropriately
- Maintain refrigerators in working order

Complete records as instructed by supervisor

Report any evidence of disease outbreaks

Assist supervisor

- with inventory of supplies
- to conduct interviews for surveys
- with other activities as necessary

Supervise Community Health Workers

Supervisors

Work with community leaders

Schedule work

Supervise health staff's performance of tasks

- Monitor health staff's performance and give feedback
- Delegate responsibility
- Identify problems, their causes, and possible solutions
- Prevent and resolve conflict
- Provide feedback to worker

Plan, conduct, and evaluate training

- Implement on-the-job training to solve problems caused by lack of skill or knowledge needed to do tasks
- Assist in formal training sessions as requested by the manager

- Evaluate training

Compile records kept by workers and provide results to the manager

Request supplies and equipment according to established schedules and procedures

Monitor routine maintenance of equipment such as refrigerators, sterilizers, and transportation used for outreach

Investigate outbreaks of disease

- Verify the existence of the outbreak and assess its extent and severity
- Begin a line-listing of cases
- Report the outbreak to the manager Begin control measures

Assist manager with local planning and evaluation

- Provide manager with information requested for planning and evaluation
- Assist manager to set targets by realistically estimating what can be done with available resources and personnel
- Assist in conducting surveys

Mid-Level Managers

Plan increased access to and usage of health services in the district*

* "District" is used here to refer to the area for which a mid-level manager is responsible. "health zone," "region," "service area " or other terms can be substituted as appropriate.

- Assign each area within the district to a supervisor
- Work with supervisors to set measurable local objectives for the district
- Obtain information from each supervisor on the situation in his area
- Meet with community leaders to plan improved community participation in health activities
- Schedule activities necessary to achieve targets

- Report local objectives and plans for achieving targets to higher levels
- Request additional personnel and resources, and/or reassign existing personnel and resources as necessary to achieve objectives

Develop or adapt job descriptions

Monitor performance of supervisors

- Observe their work during visits
- Talk with them and their health workers
- Review their records and reports

Confirm that training needs are met

- Identify training needs due to changes in assigned tasks, hiring of new workers or supervisors, or problems observed during visits to areas
- Identify ways of providing training needed
- Provide on-the-job, informal instruction during supervisory visits
- Coordinate official training courses
- Evaluate the effectiveness of training

Plan, monitor, and maintain supply system

- Estimate amounts of supplies that will be used during a given period, and the amounts needed in case of a delay in delivery or occurrence of an outbreak
- Order supplies
- Monitor the receipt, storage, and delivery of supplies

- Recognize problems and solve them

Monitor progress towards, and evaluate achievement of, health service objectives

- Determine what information is needed to monitor progress and evaluate achievements
- Identify the most practical ways of obtaining the information
- Adapt record-keeping systems and reporting forms as necessary to obtain needed information (Ensure that forms will meet national requirements as well)
- Review and compile reports from supervisors
- Analyze data to identify trends indicating either potential problems or progress being made
- Determine the reasons for the trends identified - Determine the extent to which objectives are achieved
- Conduct coverage surveys if needed (If other kinds of surveys are needed, seek assistance)

Direct outbreak investigations

- Complete line-listing of cases begun by supervisor
- Analyze and interpret results
- Coordinate control measures

Session 48: Behavioral training objectives

Session 48, Handout 48A: Behavioral objectives

Session 48, Handout 48B: Complete and incomplete behavioral objectives

Session 48, Handout 48C: List of active verbs for stating objectives

TOTAL TIME: 2 hours

OVERVIEW

During the task analysis, the trainer compiles a complete list of tasks and the knowledge, skills and attitudes needed to perform those tasks. The trainer then uses this information as a basis for writing the behavioral objectives for the training that is to take place. Clear, concise behavioral objectives facilitate the training process by providing both trainers and participants with objective means to measure the outcomes of learning. They also guide the design of the sessions and activities to accomplish what is needed. During this exercise, participants look over several behavioral objectives relevant to their program and identify their specific components. After discussion and practice-writing, they develop a set of objectives from their task analysis completed during the previous session.

OBJECTIVES

- To identify four main components of a behavioral objective. (Steps 1-3)
- To identify at least three reasons why behavioral objectives are an important part of the design of training programs. (Step 3)
- To write at least four behavioral training objectives for tasks identified in the task analysis from the previous session. (Step 4)

RESOURCES

A Trainer's Resource Guide (Draft), Peace Corps Training of Trainer Modules, Peace Corps

Handouts:

- 48A Behavioral Objectives
- 48B Complete and Incomplete Behavioral Objectives
- 48C List of Active Verbs for Stating Objectives
- 47A Task Analysis Participant Worksheets (from Session 47)

MATERIALS Newsprint and Markers

PROCEDURE

Step 1 (10 min)

Drawing a Link Between Task Analysis and Objectives

Open the session by describing to participants the link between task analysis and behavioral objectives. Also remind participants of Session 18, (Writing Objectives for Health Education) and explain that this session will concentrate primarily on writing objectives for a training course.

Trainer Note

Be sure these ideas come out here at the beginning of the session:

- By doing a task analysis of an assignment or job, trainers identify the tasks, required skills, and training needs of the trainees.
- Once the skills and training needs are outlined, they can be translated into behavioral objectives.
- Behavioral objectives state what the trainee needs to be able to know, do, or feel to accomplish his or her job.
- In the context of training, behavioral objectives state what the trainee will be able to do by the end of the course.

Step 2 (20 min)

Identifying Four Main Components of a Behavioral objective

Ask participants to individually select one task from their task analyses and write a behavioral objective for that task on a sheet of notepaper. When everyone has finished, ask three or four volunteers to write their objectives on the board in front of the group.

Using these as examples, have the group compare the objectives and identify four main components of a well-written behavioral objective. Also, show the group the learning objectives listed at the beginning of this session and help them understand the distinction between a behavioral objective and a learning objective.

Trainer Note

Having participants attempt to write an objective here gives them a chance to show what skills they may already have in this area. If you think the group would feel intimidated by this assignment, prepare examples of well-written and poorly-written objectives on which to base the discussion.

If you are using their examples, don't point out any particular one as a "bad" objective, but rather draw on them to demonstrate the four main characteristics. Use the question format from Handout 48B to help draw out and explain the components:

- Who?
- Does what?
- To what standard of quality, quantity or time?
- Given what or under what conditions?

With regard to the distinction between learning and behavioral objectives, different sources give

the term "learning objective" very different meanings. For the purposes of this module, a learning objective is defined as a sub-objective or intermediate objective that describes what the trainee is doing along the way toward accomplishing the behavioral objective. The session objectives in this manual are examples of learning objectives. The behavioral objective is terminal, that is, it describes what the trainee will be able to do by the end of the course. The objectives listed at the beginning of each module in this manual are examples of behavioral objectives.

Step 3 (30 min)

Relating Behavioral objectives to Training Situations

Distribute and have the group read Handouts 48A (Behavioral Objectives) and 48B (Complete and Incomplete Behavioral Objectives). First, answer any questions they may have regarding Handout 48A. Then ask participants to study each set of training objectives and determine which ones have all 4 components of a complete behavioral objective. As participants determine which ones are complete and which ones are not, ask them to specifically identify which of the four components are missing.

Out of their analysis of the various examples, facilitate a discussion around the following questions:

- Why is it so important to state what the trainee will do in observable, measurable actions? What is the relationship between objectives and evaluation?
- What happens when action verbs are not used?
- What are other examples of clear action verbs? Vague verbs? (Add to the list in the handout.)
- How do objectives help the trainer in designing specific learning activities for the workshop?
- How do behavioral objectives help training to improve from one course to the next?
- How can we know if our objectives are relevant for the target trainee and training program?

At the end of the discussion, ask the group to name several key reasons for using behavioral objectives in training workshops. Have a member of the group list these on newsprint.

Trainer Note

During the discussion refer the group to particular objectives either in the handout or on the board which illustrate the points being examined.

For the final list of reasons for using behavioral objectives, you may note several of the following points.

Behavioral Objectives can:

1. Facilitate instructional design and development by providing clear goals to work toward.
2. Facilitate appropriate sequencing, eliminating gaps and overlaps.
3. Promote more efficient communication between trainers, administrators, researchers, and trainees.

4. Make it evident what students actually learn, thereby permitting selection of most important goals.
5. Permit instruction to be evaluated and thereby improved.
6. Promote individualized instruction by making it possible to evaluate the progress of each trainee.
7. Permit students to be more efficient learners, when they find out what is expected of them.
8. Eliminate the time wasted when trainees can already achieve all or some objectives before beginning a course.
9. Tend to impose a philosophy of trainer responsibility for helping learners master objectives.

Step 4 (40 min)

Writing Objectives for PHC Training Situations

Have participants go back and look at the objective they each wrote in their notebooks during Step 1. Ask them to rewrite it (if necessary) so that it is a "good" complete behavioral objective. Have one or two of the participants share their examples to check for understanding and skill. If the group is having trouble, ask for more examples and resolve any doubts or confusion.

Ask the group to refer to their task analyses from Session 47 and write a set of behavioral objectives for the task identified. Distribute Handout 48C (List of Active Verbs for Stating Objectives) and suggest that people use it as they wish. Have participants work alone first, then form the same groups that worked together during the task analysis and share their sample writing with peers.

Trainer Note

The following is an example of translating a task into an objective.

Task: Write behavioral objectives based on job tasks.

Objective: Given a job task, the trainee will be able to write a behavioral training objective which has the four components of behavioral objectives as given in the text.

While the groups are working, circulate around helping to correct obvious deficiencies. If some participants are still having difficulty with the task by the end of this step, you might arrange for a peer teaching session later in the evening.

Step 5 (10 min.)

Reflecting on Learning

Close the session by posting and reading the following quote by R. P. Mager:

"If you are not certain of where you are going, you may very well end up somewhere else (and not even know it)."

Ask participants to comment on the quote in light of anything they have learned during the session. Explain to the group that they will use the objectives written today to design and develop training activities in the next session.

Session 48, Handout 48A: Behavioral objectives

What is a Behavioral objective?

A behavioral objective is a statement of what the trainee will be able to do at the end of the training course. Behavioral objectives are based directly on the tasks and 3 areas of learning identified during the task analysis - they describe what the trainee will know (knowledge), do (skills), or feel (attitudes) by the end of the course.

A good behavioral objective answers the following questions: Who? does what? to what standard of quality? quantity? time? Given what? or under what conditions?

<u>Who?</u>	A behavioral objective is concerned with what the <u>trainee</u> will be able to do, not with what the trainer will do.
<u>Does what?</u>	A behavioral objective talks about the performance of the trainees and contains an action verb that is observable. The trainee must do something that we can see and measure. If we can't observe what the trainee does, then how can we evaluate whether or not he is doing it correctly? The following lists give you examples of action verbs appropriate for use in behavioral objectives and vague verbs which cannot be observed and are unsuitable for behavioral objectives.

Action Verbs

do
list
write
describe
conduct
draw
show
organize
construct
explain

Vague Verbs

know
understand
appreciate
have
be aware

To what standard of

quantity?

quality?

time?

A behavioral objective defines the standards of acceptable performance. The criteria may relate to quantity, quality, and/or time depending on the context and what needs to be measured.

Examples of standards include: "4 out of 5 correct", "with fewer than 5 errors", "that follows the guidelines in Chapter 9 of the text", and "in less than 2 hours".

Given what? or Under what condition?

A behavioral objective defines the important conditions under which the behavior is going to occur. It answers one or both of the questions "what are the givers?" and "what are the restrictions?" Examples include: "given locally used containers and utensils", "using only the WHO Diarrhea Assessment Chart", and "working from memory". (Some people consider this part of the behavioral objective optional.)

How to Write Behavioral Objectives

It is fairly easy to write good training objectives if the trainer keeps in mind that the objective is concerned with what the trainee will be able to do by the end of the course (or segment of the course), the criteria for success, and the conditions under which they will have to perform.

The following steps will help you write complete behavioral objectives:

1. Write down who is the subject of the objective.

- the trainee (the community health workers)

2. Write out the job or task that will be done.

- the trainee will prepare a homemade ORS solution

3. Add the quantity, quality, and/or time standards that apply to the objective.

- the trainee will prepare at least one homemade ORS solution according to the ingredients and amounts listed in Handout X.

4. Add any conditions or circumstances, i.e., any tools or equipment the trainee will use in accomplishing the objective.

- Given locally available containers and utensils, the trainee will prepare at least one homemade ORS solution according to the ingredients and amounts used in Handout X.

(Adapted from:

- Michalak and Yager, Making the Training Process Work, pp. 67-72.

- A trainer's Resources Guide (Draft), Peace Corps.

- Draft Training Materials, INTRAH)

Session 48, Handout 48B: Complete and incomplete behavioral objectives

1. The trainee will observe a role-play on how to conduct a group meeting in a village setting.

2. The trainee will be able to conduct group meetings with villagers in a village, incorporating at least 90% of the suggested techniques for holding good group meetings as given in class. He will demonstrate this by conducting at least one complete group meeting on his own.
3. The trainee will thoroughly understand the technique of removing stitches after an operation.
4. The trainee will be able to list the steps to follow in removing stitches after an operation.
5. Trainee will be given the opportunity to have actual practice in doing field work related to the theories taught in class.
6. Trainee will be able to do family planning field work, using extension education techniques as described in the manual on extension education.
7. To discuss the population problem and its implications.
8. Trainee will be able to list the main causes of the population problem as given in class.
9. The trainee will be able to prepare a menu of a low-cost diet for a pregnant woman that includes at least one food from each of the three food groups.
10. Given a basic message, the level of education of the audience, and a basic program format, the trainee will be able to write a family planning radio script that meets the four criteria for good scripts as described in the textbook.

Session 48, Handout 48C: List of active verbs for stating objectives

Abbreviate
Act
Administer
Aid
Allow for
Analyse
Apply
Appraise
Arrange
Assist
Ask
Assemble
Attend
Audit
Avoid
Bring
Build
Calculate
Care for
Categorize
Change
Chart
Check

Choose
Circle
Cite
Clean
Close
Collaborate
Collect
Communicate
Compare
Compile
Complete
Compute
Conclude
Conduct
Connect
Construct
Contrast
Contribute
Control
Convert
Cooperate
Correct
Create
Criticize
Decide
Decrease
Deduce
Defend
Define
Delimit
Demonstrate
Derive
Describe
Design
Designate
Detect
Determine
Develop
Dispose
Diagram
Differentiate
Direct
Discover
Discriminate
Display
Dissect
Distinguish
Divide

Do
Draw
Edit
Effect
Encourage
Enumerate
Enunciate
Establish
Estimate
Evaluate
Examine
Exchange
Execute
Explain
Extract
Extrapolate
Facilitate
Fill
Find
Follow
Formulate
Furnish
Generalize
Generate
Get
Give
Guide
Hold
Identify
Illustrate
Implant
Include
Increase
Indicate
Induce
Infer
Inform
Insert
Integrate
Isolate
Justify
Label
Lead
List
Locate
Maintain
Make
Manipulate

Map
Match
Measure
Meet
Mobilize
Modify
Move
Name
Narrate
Note
Obtain
Omit
Operate
Oppose
Order
Organize
Outline
Paraphrase
Participate
Perform
Pick
Place
Plan
Play
Plot
Point
Position
Practise
Predict
Prepare
Present
Prevent
Prognose
Promote
Protect
Provide
Pursue
Put
Raise
Read
Rearrange
Reassure
Recite
Reconstruct
Record
Recount
Reduce
Regroup

Relate
Remove
Reorder
Reorganize
Rephrase
Replace
Request
Reset
Resolve
Respond
Restate
Safeguard
Select
Send
Separate
Serve
Set
Share
Simplify
Solve
Sort
Speak
Specify
Start
State
Store
Structure
Suggest
Supply
Support
Synthesize
Tabulate
Take responsibility (for)
Teach
Tie
Time
Trace
Translate
Treat
Underline
Use
Utilize
Verify
Wash
Weigh
Work
Write

Session 49: Training techniques and materials: Applying experiential learning

Session 49, Handout 49A: Observation from for assessing training activities

Session 49, Handout 49B: Learning methods for training situations

Session 49, Handout 49C: Design components of an experiential training session

Session 49, handout 49D: Description of some training methodologies: Lecture or talk

Session 49, Handout 49E: Teaching attitudes and skills

Session 49, Trainer Attachment 49A: Group discussion

TOTAL TIME: 4 hours

OVERVIEW

Trainers need a repertoire of training techniques from which they can draw to create appropriate learning situations for their participants. Though participatory experiential approaches are certainly advocated in this manual, future trainers should learn to recognize when a more didactic approach might be in order, and generally understand the advantages and disadvantages of various techniques and materials.

During the first half of this session, the group participates in and critiques short sessions which illustrate both didactic and participatory approaches. Afterward, they explore the use of "discussion" and practice combining techniques to design sessions which complete the experiential learning cycle.

This session is similar to Session 23 (Adult Learning and Nonformal Education Techniques) except that the emphasis is on techniques that work best in health worker training programs rather than techniques that work well with community groups. The collection of training techniques suggested in this session is meant to complement (not duplicate) the techniques treated in Session 23; together, they provide the participants with a number of ideas and options for designing creative training programs.

OBJECTIVES

- To identify advantages and disadvantages of specific didactic and participatory training techniques. (Steps 2, 3, 4)
- To examine the use of discussion in training and formulate open and closed discussion questions. (Step 6)
- To design a session outline or sketch that accomplishes a specific objective and utilizes experiential learning. (Step 7)

RESOURCES

- Training Community Health Workers, pp. 30-34.
- A Trainer's Resource Guide (Peace Corps)
- Teaching and Learning with Visual Aids (INTRAH)

Handouts:

- 49A Observation Form
- 49B Learning Methods for Training Situations
- 49C Design Components of an Experiential Training Session
- 49D Descriptions of Some Training Methodologies
- 49E Teaching Attitudes and Skills
- 46B Experiential Training Methodology (from Session 46)

Trainer Attachment:

- 49A Group Discussion

MATERIALS

Newsprint, markers, preps and other materials required by the short training activities

PROCEDURE

Trainer Note

This session requires considerable preparation. Beforehand, read all of the handouts provided here and plan three 30-minute training activities that provide experience and variety. A lecturette, a role play, and small group discussion of critical incidents are three suggested activities but you may wish to use others more familiar to you. Try to select methods that show a range from the more didactic to the more participatory. The content of the training activities can be PHC-related or you may choose to treat some other pending issue for the group (e.g., cross-cultural questions or language problems); the most important consideration with content is that it be relevant to the needs of the group. During the activities, group members participate as what they are - "the trainees".

If some participants in the group already have experience in conducting training activities, ask them to plan and facilitate these activities with their peers. Provide them with pertinent reference material from Handout 49D (Description of Some Training Methodologies). Also, work with the volunteer facilitators in their planning to be sure that the activities demonstrate good use of training techniques.

Step 1 (10 min)

Reviewing Techniques Used in CCCD Training

Present the objectives for the session and ask participants to think about the training techniques which have been used thus far during this training program. Ask the group for several specific examples and write these on the board. Have the group briefly review each of the techniques on the list regarding its appropriateness for the content or skill area and its effectiveness in helping the participants learn the material and accomplish the objectives.

Trainer Note

This brief initial discussion should give you an idea of how much understanding and experience the participants already have with these techniques and help you focus the large group discussion accordingly.

Step 2 (10 min)

Introducing the Example Techniques and Observation Form

Explain to participants that they will now gain more experience through participation in a series of activities which incorporate different kinds of training techniques. Briefly describe the activities you have prepared. Tell participants they should play themselves during these activities (i.e., they do not have to assume the role of someone else).

Distribute Handout 49A (Observation Form) and have the participants review it. Tell the group they will have a few minutes following each of the three activities to fill out the form for that particular technique and that their observations will serve as a basis for later discussion. Ask the group if they have any questions or doubts.

Trainer Note

If some participants are facilitating, give them this time for any last minute preparation while you are setting the stage with the rest of the group.

Step 3 (1 hour, 30 min.)

Experiencing Training Techniques

Conduct the training activities with the group, allowing a few minutes after each one for filling in the observation form.

Trainer Note

Begin with the more didactic training technique (e.g., a lecturette with discussion) followed by the more participatory activities.

Step 4 (15 min)

Sharing Reactions to the Three Activities

Ask participants to decide which activity they found most interesting and effective for their personal learning experience. Have the people who picked Activity 1 form a group, those who picked Activity 2 a second group, and so forth such that you have 3 groups in different areas of the room. If the groups are considerably uneven, ask one or two people to join the smaller group. Then have one person from each group join together to form triads. Each triad should now have someone representing each of the activities.

Ask participants in their triads to exchange reactions to the activities using the observation form as a starting point. Have them conduct a discussion around the following questions:

- How appropriate was the learning technique/activity for accomplishing the given objective? How appropriate was the technique for the target group (i.e., Peace Corps Trainees)?
- How effective were the visual aids and other materials used in conjunction with the techniques?
- How does your personal training style affect the way in which you respond to different types of techniques? What implications might this have on training workshops?
- What would be other techniques/activities for accomplishing the same given objectives?

- In what situations does a didactic approach seem most appropriate? In what situations would a participatory approach be preferable?

Step 5 (20 min.)

Large Group Discussion of Techniques

Reconvene the large group and ask a representative from each triad to briefly summarize their discussions for the rest of the group.

Distribute Handout 49B, "Learning Methods for Training Situations," and ask the group to look over the chart. Facilitate a discussion on the various methods included in the chart using these questions as a guide.

- How have you seen each of these techniques used in this program or other training workshops in which you've participated?

- How can you use them in future workshop situations with clinic personnel? With community health workers?

- Which techniques work better for knowledge learning? Skill learning? Attitude learning?

- How might some participatory activities be inappropriate for the local culture? Cite some specific examples, if possible.

- Based on the earlier training activities in this session, your previous experience, and the information in the handout, why would participatory techniques be appropriate for most of the training situations in which you will be included? Why would some trainers (and trainees, too) still prefer techniques that are more didactic in nature?

Make a list on newsprint of the group's response to the last set of questions above. The following Trainer Note gives an example of the possible reasons for using or not using participatory techniques.

Trainer Note

Several reasons why participatory techniques are recommended include:

- Trainees learn more from developing their own ideas than from listening to someone else's.

- Collectively, trainees (i.e., health workers) have vast community experience and much to learn from each other.

- Participatory techniques inform trainers about trainee beliefs and practices and about their learning progress.

- Role-playing facilitates practice of community skills.

- Community health workers need to encourage participatory learning in their communities and should learn how during training.

- Participation is especially critical for learning problem-solving and decision-making skills a vital part of most CHW job descriptions.

Some of the reasons why trainers and trainees may prefer lectures and other didactic methods

might include:

- They are familiar and comfortable to both trainers and trainees and thus require little trainer preparation or supervision.
- Material can be covered much faster with conventional than unconventional techniques (although it may not be learned as well).
- Participatory techniques undermine the difference in rank between trainers and trainees.
- Same unconventional methods may be totally inappropriate for a particular culture.
- Course objectives may be threatened if trainers lose control of the discussion.
- Conventional methods are particularly appropriate for memorizing information.

(Taken from Training Community Health Workers)

20 Minute Break

Step 6 (20 min)

Discussing "Discussion"

Ask the group to take a few minutes to consider "discussion" as a training technique. First, ask participants to state some of the differences in function and dynamics between small and large group discussions. Then, using Trainer Attachment 49A as a reference, illustrate the concept of questioning vs. group discussion. Briefly role-play the two approaches with the group and use the diagrams on page 3 of the attachment to help participants grasp the difference between the two.

Write the following types of questions on the board: closed, open, re-directed, leading, and rhetorical. Ask participants to give examples of each type and explain how they are used (if at all) in discussion. Assist the group with some of your own examples if they are confused. Afterwards, have them practice formulating open and closed questions using a CCCD activity as their "topic".

Trainer Note

Please note that the facilitator's role in discussion will be more fully dealt with during Session 51 (The Role of the Trainer).

Step 7 (30 min)

Combining Techniques to Design Experiential Activities

Ask participants to review Handout 46B, Experiential Training Methodology, from Session 46. Draw the group's attention to the various techniques suggested for each step in the experiential model. Briefly discuss with the group how training techniques can be combined together with discussion to create a complete experiential learning cycle. Also provide the group with (or ask a

participant for) an example of an activity that is participatory, but not necessarily experiential and help the participants understand the difference.

Ask the group to break down into the teams that worked together through the task analysis and objective-writing exercises. Have each team select one (or more) of the objectives they wrote during the previous session and design an experiential training session for accomplishing the objective. Tell the teams to outline the session on newsprint and be prepared to present it to the group. Before the teams begin their task, distribute Handouts 49C (Design Components of an Experiential Training Session) and 49D (Descriptions of Some Training Methodologies) for use in their task and for further reference.

Trainer Note

Make it clear to the participants that they are only outlining or sketching a session, not writing one. Provide a session sketch as a reference if appropriate. Suggest that participants jot down any questions they may have from reading the handout materials on the various techniques.

Step 8 (25 min)

Presenting the Session Sketches

Have each team present the objective(s) to be reached by the session and their sketch to the rest of the group. Ask participants to provide feedback to their peers regarding:

- the appropriateness of the selected techniques for accomplishing the objective(s)
- the appropriateness of the techniques for the specific target group

Ask participants if they have any questions related to the information provided in Handout 49D (Descriptions of Some Training Methodologies). Also, pass out Handout 49E (Teaching Skills and Attitudes) as a final reference material for this session. Close the activities by explaining to participants they will use the information learned today in Session 53 where they will design training activities for a workshop.

Session 49, Handout 49A: Observation from for assessing training activities

	Source of Content:	Level of Participation:	Type of Participation:	Mood/Feeling During Activity:	General Evaluation:
ACTIVITY	What is the source of the content of this activity?	What was the level of participation during this activity?	Were the participants merely required to understand the content or were they allowed to create and contribute any new content?	What were your own feelings during this activity?	Who do you feel directed activity?

	Facilitator:	Group:	High:	Low:	Understand:	Create:	Bored:	Happy:	Facilitator:	Group:
1.										
2.										
3.										
4.										
5.										
6.										
7.										
8.										
9.										
10.										

Session 49, Handout 49B: Learning methods for training situations

Learning Methods for Training Situations

Method	Description/Examples	Appropriate Uses	Inappropriate Uses	Advantages/Strengths	Disadvantages/Weaknesses
Formal Lectures	Teacher "delivers" information to students who are expected to learn it	Transmission of knowledge, procedures, of facts that have to be memorized; also good for large audiences	To teach skills or problem-solving techniques	Easy for trainer; covers much material in short time	Students may not learn well; teacher does not learn about field problems or perceptions of students

Small group discussions	Trainees discuss problems and possible solutions; teacher stimulates discussion but does not dominate	To develop problem-solving skills; to provide feedback to instruction	To teach fact that must be memorized	Encourages students to discuss things on their own; helps instructor to understand what students are thinking; helps develop attitudes	May "drift" from planned agenda; trainees may not learn what trainers want them to; can be time-consuming
Practical experience	Students practice clinical and community skills, generally after prior demonstration or instruction	For learning specific technical functions	To teach fact that must be memorized	The only effective way for perfecting skills; also develops attitudes	Requires close supervision and persons or objects on which to practice
Apprenticeships	Students assist an established practitioner and learn by observation, imitation, and practice	For learning clinical skills, especially highly technical ones	For basic learning (apprentices should have some skills already); for teaching community work	Facilitates practical experience under close supervision	Preceptors often lack experience/interest in supervision and teaching; may use apprentices inappropriately
Role-playing	Some students "act out" typical work problems; others observe, subsequently discuss	To give students practice in patient and community relations	To teach students treatment requirements with which they are not already familiar	Develops problem-solving skills and attitudes	Students often have difficulty putting themselves in unfamiliar roles
Storytelling	Trainer tells a close-to-locate life scenario illustrating causes/consequences	To demonstrate how social condition	To teach technical diagnostic and treatment	Helps trainees draw lessons from subsequent "real world" situations and	Trainer (or a coached trainee) must have storytelling skills; only effective if followed by good

	ces of ill-health; discussion follows to draw out "lessons"	s and personal behavior influence health	skills	provides community health education	group discussion
Solving real problems	Students develop solutions of their own with some coaching; groups critique/refine these solutions	On-the-job and inservice training	For work in totally unfamiliar subject areas	CHWs often know problems and the feasibility of potential solutions better than instructors	Trial and error involves some errors, and these may sometimes be costly
Village theater	A combination of role-playing and storytelling, usually using traditional theatrical medium	For teaching the social and personal causes of ill-health to large groups	For teaching technical skills	People may learn best from a traditional medium	Often requires considerable preparations

(From: Training Community Health Workers, World Federation of Public Health Associations, pp. 30-31)

Session 49, Handout 49C: Design components of an experiential training session

1. Climate Setting

- Stimulates interest, curiosity, induces participants to begin thinking about the subject at hand.
- Provides rationale for why subject is important to participants and how it will be useful to them.
- Links this training session to previous ones and places it into the overall framework of the workshop.

2. Goal Clarification

- Presents to the participant statements which describe the intent, aim or purpose of the training activity.
- Provides opportunity for participants to seek clarity on goals, add additional issues or raise concerns.

3. Experience

- An activity which group engages in that will provide opportunity for them to "experience" a situation relevant to the goals of the training session.

- This "experience" becomes the data producing event from which participants can extract and analyze as they complete learning cycle.

- Common "experiences" are role plays, case studies, paper and pencil instruments, etc.

4. Processing

- Participants share individual experiences and reactions to the experience.
- The experience is analyzed and reflected on thoughtfully by the group.
- Trainer guides and manages this process.

5. Generalizing

- Participants determine how the patterns that evolved during the "experience" relate to the experiences of everyday life.
- Participants seek to identify key generalizations that could be inferred from the experience.

6. Applying

- Using the insights and conclusions gained from the previous steps, the participants identify and share how they plan to incorporate these new insights into their everyday life.
- Answers the question, "Now what?" and "How can I use what I learned?"

7. Closure

- Briefly summarizes the events of the training session.
- Links back to goals and seeks to determine if goals have been met.
- Wraps up training session and gives a sense of completion.
- Links session to rest of program especially upcoming sessions.

(From: Wilma J. Gormley and James A. McCaffery, Ph.d Training Resources Group, 1982)

Session 49, handout 49D: Description of some training methodologies: Lecture or talk

NOTE TO THE TRAINER:

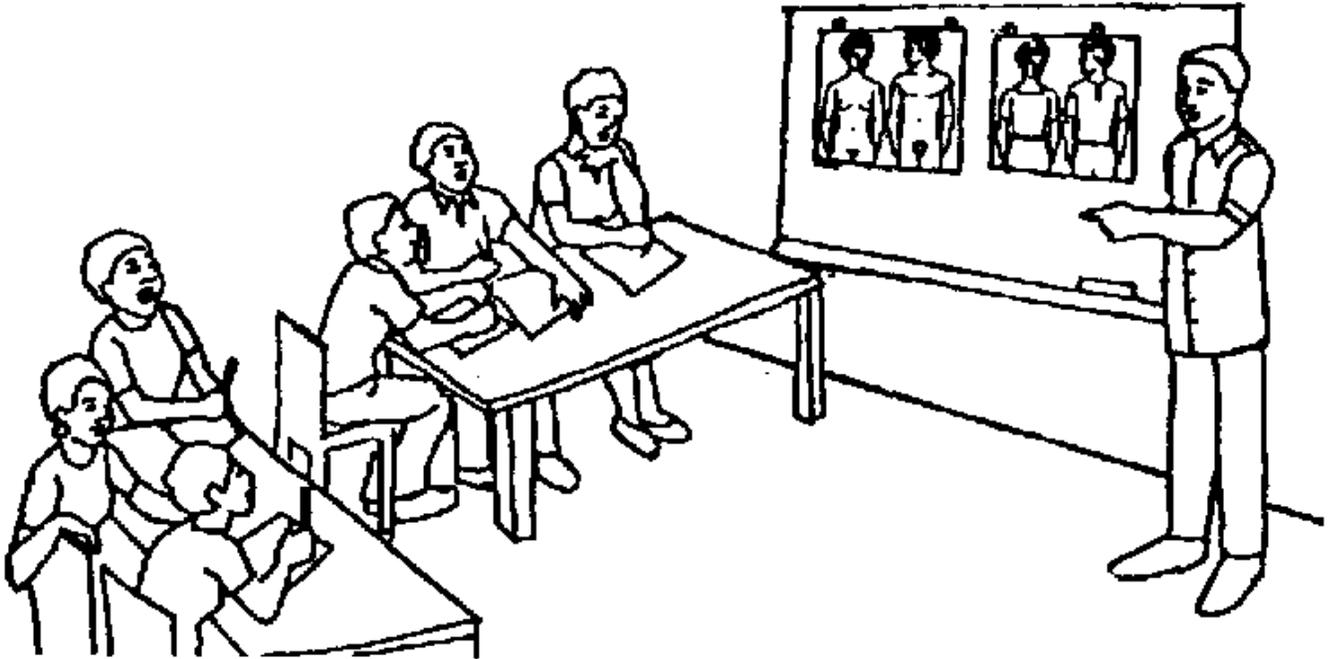
Present part of the section of Unit 2 on Adapting Visual Aids. Give learners a good example of effective use of the lecture method. (Show the pictures as you talk, and ask questions.)

Ask your learners to describe the method, and suggest what things it is useful for. Have them suggest some guidelines for using the method. Write their suggestions on the chalkboard.

Use the guidelines given here to add ideas they do not mention.

The guidelines for each method given here have been tried many times all over the world, and they seem to work well. Your learners may also have good ideas to add.

Continue the discussion until your learners have agreed on a set of guidelines for using the lecture method.



Definition: A presentation from the trainer to the learners.

What a lecture or talk is good for:

- Present an overview of a topic or introduce a topic to be used as a basis for discussion.
- Report experiences to others.
- Review or summarize.
- Inspire or motivate others.
- Hear from resource persons.

Planning a Lecture

Gather Information

1. What are the objectives?
2. What will the participants need to do with the information?
3. Is lecture the appropriate method to use?
4. What do the participants know about the topic?
5. What resources are available?
6. How much time is allotted?
7. How many participants will be present?

Develop the Content

1. Match the content to the objectives.
2. Take into account what the participants know about the subject.
3. Take into account how the participants will use the information.
4. Limit the content to 3 to 5 main points.
5. Decide on a logical sequence
6. Plan to review background information.
7. Relate the new information to old information.

8. Give examples.
9. Show how the information can be used.

Emphasize the Main Points

1. At the beginning of the lecture, tell the participants what you expect them to learn.
2. At the end of the lecture, summarize the main points.
3. Give the participants information sheets or outlines.
4. Use transitions frequently.
5. Use interesting visuals, props, and audio-visual materials.

Plan an Introduction and Summary

In the introduction:

1. Put the lecture in context
2. Inform the participants of the objectives
3. Gain attention by
 - relating a personal experience
 - asking a question
 - posing a problem
 - using a visual or audiovisual aid
4. Review information that will help the participants understand the new information.

In the summary:

1. Review the main points of the lecture.

Involve the participants

1. Plan exercises for the participants to do during the session.
2. Invite comments from the participants
3. Give the participants a chance to ask questions.
4. Use other methods such as discussion and role play before or after a lecture.

BRAINSTORM

A creative technique which encourages students to use their imagination rather than reasoning for suggesting solutions to a specific problem.

Use to:	Caution:
Encourage students to be spontaneous solutions to problems.	Some students are better at it in expressing than others, especially those who are not shy and reserved and those who can think fast.
Acquire a number of ideas for later discussion.	This technique is not a substitute for analytic thinking.

Implementation of Brainstorm:

- Create a relaxed, supportive atmosphere for the free flow of ideas: quantity of ideas is the main objective of brainstorming.
- Problem should be one that: (1) is simple and specific; (2) is familiar to students; (3) has many possible solutions.
- Ground rules: (1) students may suggest any idea that comes to mind, the wilder the better; (2) ideas are not to be evaluated; (3) students are not to criticize ideas of others.
- Process:
 - (1) identify problem day before brainstorming session so students can start thinking of ideas;
 - (2) designate leader to guide group and recorder to record ideas;
 - (3) leader states problem clearly;
 - (4) students raise hand to offer solutions;
 - (5) only one idea is presented at a time (teacher should be prepared to suggest categories as leads or suggest solutions if ideas are slow in coming);
 - (6) continue until it appears that all ideas are presented (15 minutes).
- Results of brainstorming ideas:
 - (1) organize and evaluate ideas either at the end of a lesson or at another class (waiting until a later time gives students a chance to clarify, combine or improve ideas presented);
 - (2) categorize ideas;
 - (3) select 5-10 best ideas and make decisions on implementing them.

LARGE GROUP DISCUSSION

Class examines a significant problem with the goal of trying to reach the best solution possible.

Use to:

Consider new goals and possible directions of the group.
 Develop a topic of interest to the whole class.
 Pull ideas following a resource person or small group discussion.

Caution:

Choose a problem that is of interest and relevant to the entire class.
 Encourage all class members to participate in the discussion
 Topic should have sufficient breadth and depth to require critical thinking.
 Small group discussions often produce, more ideas than large group discussion.

Implementation of Discussion:

Discussion involves the following steps:

1. Define problem clearly.
2. Explain and analyze possible causes.

3. Examine possible solutions.
4. Select best solution.
5. Work out means of implementing.

Seat in climate for free interchange: circle or square so students are facing each other.

Select discussion leader (student or teacher). The leader should:

1. Be familiar with topic.
2. Define terms and clarify problem.
3. Start discussion.
4. Keep discussion moving by returning questions to audience or directing certain parts of the discussion to various members of the audience.
5. Emphasize important ideas.
6. Redirect discussion.
7. Encourage all to participate.
8. Provide summary and correct mistakes if necessary.

Discussion Techniques:

1. Students provide reactions to specific words.
2. Students complete incomplete sentences.
3. Students respond to emotionally toned picture.
4. Students respond to challenging questions.
5. Six persons talk about a problem for six minutes-DISCUSSION 66
6. Students react to case study.
7. Students react to quotations.

SMALL GROUP DISCUSSION

Dividing a large class into smaller groups of 6 or less and given a short time to discuss a specific topic.

Use to:	Caution:
Plan class activities when it's important to get student input.	Authoritative students may control small groups.
Stimulate individual thinking and promote individual discussion.	Insure a system for getting leader and recorder efficiently without losing time.
Provide a fast way of attacking problems and pulling ideas from individuals in a short period of time.	Encourage students to increase their responsibility for group activity over time.
Get a discussion started following a speaker, film, etc.	
Intersperse during a lecture or large group discussion to maintain interest.	

Implementation of Small Group:

- Problem is defined by teacher. Purpose of organizing group is clear to students and then students are divided into equal sized groups.
- Groups of 4-6 work well. To get groups:
 1. group according to seating arrangement
 2. have students count off 1-6 or as many groups as desired, repeat with like numbers grouping together;
 3. have cards with numbers, pictures, symbols that students draw with like ones forming a group;
 4. students choose own groups.
- Each group chooses a chairman or teacher designates a chairman whose responsibility is to see that all members of the group are heard from and a secretary whose responsibility is to record solutions and comments.
- Time: too little time is better than too much. Depending on the topic, 5-20 minutes is suitable for generating ideas but does not exhaust a topic.
- At a specified time, class reconvenes for reporting best ideas. Make sure all groups present ideas. To avoid duplication, groups with similar ideas can raise their hands when an idea they have is presented by another group.
- Make resources available for students to use in small groups.
- Conduct a total group discussion based on ideas presented by small groups.

ROLE PLAYING

Description

Role playing is creating a real' situation for people to assume an identity other than their own. The participants in a role play improvise a script as they go along. The roles are created so that there is a particular problem or joint task between two or more roles which require people to do something together.

When is it a useful training technique?

In training for skill development, role play is the logical choice. Role playing allows participants to practice their skills in dealing with the situation or helps participants understand the complexity of the situation as well as the skill required.

Additionally, role playing can be helpful to respond to attitude objectives. Because it is involving, participants explore their personal reactions and feelings when talking about the experience. Not only do participants learn about themselves, they also have an opportunity to become aware of the "other" players' point of view. Finally, role playing is a technique that allows for the level of complexity of real life.

Types of Role Playing Structured Role Playing

In this type, the trainer selects both the situation and the roles to be enacted, and specifies the goals of the activity. This type of pre-planned role playing provides very well written and well planned materials that describes the roles and situations to be enacted and elicit responses from the observers. This type of role playing requires a great deal of time and effort from the staff during the planning stages to create a role play that is as real to everyday life situations.

Spontaneous Role Playing

This approach relies on problem situation arising from group discussion without advance planning by the trainer. In this instance, the enactment itself serves as the "briefing" to the group on the problem and situation.

Both structured and spontaneous role playing relate to learning through (a) doing, (b) imitation, (c) observation and feedback and (d) analysis. Role playing represents a form of experiential learning.

How to Construct a Role Play

Pick a situation that is realistic to the training participants, and consistent with the learning objectives.

Define the problem or issue in the situation that the players will have to deal with.

Determine the number of role players needed.

Develop the specific roles for each person by answering these questions:

- what is this person like?
- what is important about their background?
- how do they feel about the other "people"?
- how do they feel about the situation?
- what do they think about the situation?

How to set up a role play

From the trainer's point of view, the first role playing is crucial. It is at this time that the group's attitudes to the technique will be determined and their future performance as role players will be settled. The role playing session should start by the trainer briefing all the participants. He/she should outline the situation that is to be the basis of the role playing and should give a concise description of the characters involved in the situation. This being done, the players then acts out the situation, making up their lines as they go along. At the end of the scene, the players are debriefed and the rest of the group discuss what has taken place during the scene, the motivations of the people involved, and why the scene developed as it did.

In a role playing situation that is effectively handled, not only the role players, but also the whole group becomes involved, and this involvement often carries over to the discussion thereby enriching and enlightening it.

If the trainer wishes to involve the whole group further, he/she may give member of the group definite tasks to carry out during the scene. For instance, one member of the group may be required to note the gestures and mannerisms of the players, another may be briefed to listen for significant remarks, and yet another may be asked to try and spot focal points of the drama.

It is also possible to use the role play in small groups, having several role plays occurring at the same time. This is harder to manage the process of the learning, but has more people directly involved.

Regardless of the number of role plays and types of participation, you start all role plays the same way:

- * Describe the propose for the role play.
- * Describe the situation briefly and clearly, even if prepared written roles are used.
- * Unless everyone is participating, select the role players. Take care in assigning roles (e.g., do not chose people who might overidentify with the problem, etc.)
- * Brief the role players. Allow time to understand or read the roles. Tell role players to make up facts or information not covered in roles or that they forget but which seems necessary. Do not try to "stump" the players. Do not "overact."
- * Assign tasks or structure what the group or the observers should look for.
- * Set the scene. Label props (if used) and place role players to define the physical situation and mood. Help relieve tension/anxiety of players by smiling, making physical contact, and checking readiness.
- * Don't allow the role play to go on too long.

Remember, most of the common problems in managing role plays can by avoided by a carefully prepared and delivered introduction.

How to monitor the role play

- * Start the action. When several groups are involved all should start at the same time.
- * Stay out of the line of vision o the role players. Quietly observe.
- * Coach only if absolutely essential - if role player have difficulty getting started, breaks role, etc. (Unless you are using a "stop action" role play procedure where you have explained beforehand that you will be interrupting the role play at various points to discuss or add information or switch roles.)
- * Cut the role play. Try not to be abrupt. Don't continue too long often the role play will arrive at a natural end point. Just a few minutes of interaction can provide data for a long discussion, so don't overload the audience.
- * Thank the role players using their real names. This removes them from their roles and provides a bridge to the discussion to follow.

How to process a role play

- * Allow role players to comment before the audience. Between the players, allow the person who "had the responsibility for solving the problem or being in a difficult situation" to go first.
- * Open discussion to audience and/or observers. Try to trace the way the situation and interaction developed; why the role players behaved as they did; how it might have gone differently to achieve a better outcome.

* Encourage audience/observers to describe their own feelings as certain events occurred, rather than only analyzing the behavior of the role players.

* Summarize major issues and tie these to role play purpose. (Do not evaluate the acting ability of the role players or be stuck in their interpretation of their roles. Rather, stay focused on what the role play contributes to the understanding of the situation.)

CASE STUDY AND CRITICAL INCIDENTS

Description

Case study and/or critical incidents are problem identification, problem solving activities.

Both the case study and the critical incident are descriptions of situations which are as close to reality as possible. The case study is usually complex and contains several sets of information from a variety of sources. The critical incident is very short and simple and provides a limited amount of background information. Either technique may or may not demand a decision or resolution at the end of the exercise. In both techniques the focus should be on thinking, talking, and deciding about the many ways of solving the problem, and analyzing the factors which may have contributed to the situation.

When is it a useful technique?

Case studies and critical incidents are useful when the learning goal is to practice analyzing a complex set of factors of a specific situation or problem. It assists in developing participants' analytical and problem solving skills and provides the basis for discussion of alternative solutions to a central or common problem. These techniques also are useful in giving participants a chance to practice a method of tackling difficult problems before he/she is personally involved in a "real" situation that may be difficult, confusing, frightening or overwhelming.

How to construct a case study or critical incident

A case study starts with the identification of what you want participants to learn. Then a situation, tasks, and time period are selected which will include all the aspects you want participants to consider. Examples of these might be a meeting, the handling of a complaint, or one day in the life of a volunteer. Characters are developed through the writing of sample dialogues, letters and any other paper that will give the appropriate setting and personal information.

These guidelines below will be helpful in developing a case study or critical incident. Remember the critical incident may, in fact, be only a two or three sentence description of a problem situation so some of these guidelines may not be as applicable.

* The case study is a description of a specific situation, near to reality as possible (with names changed to protect the innocent).

* The focus is on experience, therefore an actual situation where action/decisions can be made.

* The discussion centers in an actual, multi-faceted situation.

* Case studies emphasize the particular rather than the general as much as possible.

* The participants are to feel that they have had the experience the case study describes.

- * Therefore the case study must be of interest so the participants can "get into it."
- * The reader individual or the reader/group do the decision-making. There are usually no observers or spectators in the group.
- * The decision making process itself can be dissected and analyzed as the group moves toward a solution.
- * Ideally, the case study method when used well gets the participant in the habit of making decisions.
- * If a time-frame is established i.e. 60 minutes, 2 hours, etc., decision-making includes use of time.
- * Case studies are best when they come as close to reality as possible; therefore, they should reflect day-to-day and decision-making with opportunity for differences of opinion. Resolving those differences of opinion into consensus or majority-minority decision is part of the task.

How to use a case study

After the participants have read the materials and made their analysis the trainer leads a group discussion to draw out the learnings. Sometimes it is useful to have small groups discuss the materials initially and report to the large group as a means of beginning the large group discussion.

Session 49, Handout 49E: Teaching attitudes and skills

How to teach attitudes

There are no guaranteed methods of teaching attitudes. The teacher must be aware that all of the experiences that a student has may change his attitudes. But no single experience can be certain of having a specific effect on all students.

There are five general methods which the teacher can use. These are:

- (i) providing information
- (ii) providing examples or models
- (iii) providing direct experience
- (iv) providing opportunities for discussion
- (v) role playing exercises

Even though you use all these methods, you must be aware that students' attitudes may be shaped by events which you have no control over. For example students will read books, talk to people outside the school, meet their families and so on. The students will also have formed many of their attitudes before they start their training. So you can only provide one influence amongst many.

It is important therefore that your influence must be as strong as possible and - of course that the influence must be a good one.

The following sections explain each of the methods in more detail.

Providing information to shape attitudes

Information is not always enough to change attitudes but it may help. For example, the facts relating to smoking and the risks of cancer and heart disease are fairly well known by many people in a number of countries. For some people this information has been enough to persuade them to change their attitude to smoking and to stop smoking. For many other people, the information has not been enough.

The information may be presented in many ways. Lectures are one obvious method. Films are often more effective because they can provide a more intense experience.

The important teaching technique is to show how the facts are *relevant* to the attitude.

Exercise

List the information you would provide to students if you wanted to persuade them that aseptic techniques were very important. How would you make these facts relevant to the attitude of thoroughness in cleaning hands and sterilizing equipment?

As another example, what facts would you provide if you wanted to persuade a mother to have a more positive attitude to breast-feeding?

Comments on the Exercise

You might have made the following points:

- the dramatic fall in mortality rates when aseptic methods were introduced in hospitals in the 19th century.
- The need for health workers to set a good example to the community.
- The ways in which infections can be transmitted.

These facts all show why aseptic techniques are reasonable. They appeal to the reason in students. Sometimes less logical and more emotional facts may be more effective. For example you might tell of an experience which you have had which shows what happens when aseptic techniques are not followed. This single experience will not have much logical importance - but you may make the story so dramatic and vivid that it has more effect.

Providing examples or models to shape attitudes

Most advertising is designed to change attitudes. A common technique is to show an '*ideal person*' (usually young, good looking and female!) using a certain product. The advertiser aims to provide a model or an example which will be followed by the reader. This technique is generally very effective.

What has this got to do with teaching? Well, for many students their teacher is a very powerful model. His students will often tend to copy the way he behaves. If he is rude to patients or is careless in handling equipment, then the students will tend to follow this example.

On the other hand, if the teacher shows that he is considerate to the people he works with, then the students will tend to behave in a similar way. Therefore it is essential that in everything you do you should provide a good example.

Of course, all the other people that your students see will have an influence. Other health workers, nurses and doctors will all provide models for the students to copy. The teacher should therefore make sure that as far as possible, the model is a good one.

Providing experience to shape attitudes

Throughout the students' training they will have experiences which will shape their attitudes. They may see patients with sores which have not been treated and have then become septic and possibly disabling. This direct experience of seeing the patient's suffering will have far more impact on shaping attitudes than a whole bookful of facts about the need for early treatment of sores and superficial wounds.

The teacher should provide as much of this direct experience as possible. For example many health workers have responsibility for improving nutrition in a community. In some schools the students grow all the vegetables that they eat and look after animals themselves. This experience will help them to have more positive attitudes to doing the work themselves. In these schools the teachers believe it is important for the teachers to join in with the digging and cultivation so that students learn that the manual work is not undignified.

Other positive experiences can also be provided. Students should see the benefits of an uncontaminated water supply in a village. They should see how good nutrition can lead to a better life.

A question. Do you think that students should have the experience of cooking their own food during the course - or should the food be prepared for them? What attitudes would you expect in these two situations?

Exercise

List 3 experiences which you think your students should have which would help them to form good attitudes *to patients*.

Comments on the Exercise

You may have written down ideas such as:

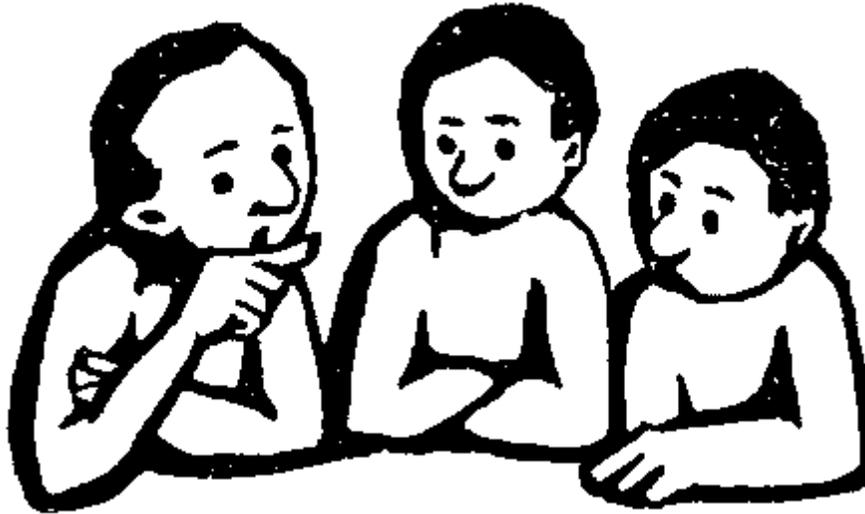
- Working with an experienced health worker who you know has good attitudes to patients.
- Talking to patients about their worries concerning health.
- Meeting people who suffer from some disabling but preventable disease.

Note: It is always a good idea to discuss these experiences with your students so that you can make clear the kinds of attitudes which you want them to learn.

Providing discussion to shape attitudes

Discussion in small groups is generally thought to be helpful in shaping attitudes. It is especially important as the discussion will help to make the previous three methods more effective. For example it will be helpful for students to describe and discuss the experiences that they have had with patients. In the discussion they will share experiences, so that the experience which one student has had may influence all the other members of the group

"Providing discussion to shape attitudes."



Another important feature of the discussion is the way in which the attitudes of individual students change when they talk about their own opinions. The process of putting their ideas into words and seeing the reaction of the other students can be a powerful way of bringing about attitude change. For this to happen, the group size must be small enough to give every student a chance to talk. A group of 7 or 8 students is ideal and 15 is an absolute maximum for this technique to be effective.

Notice that it is not what the teacher says which is really important. It is what each student says which has the greatest effect. Therefore, the teacher should speak very little in these small-group sessions. He may encourage the quieter students to give their opinions and he may have to stop the talkative students from talking too much. But only in exceptional situations should the teacher give his own opinions or take an active part in the discussion.

Of course, when there are very large numbers of students, it may be impossible to have one teacher for every small group of ten or so students. One solution is to let the students meet without a teacher. This is possible because the teacher's role is only to help the student to talk. You can help students to talk by providing some written guidance for the students' discussion. For example, you might provide a list of questions for the discussion and appoint one student to report the discussion at a class where all the students are present.

Example of questions for a discussion

Imagine that each of you has been sent to different villages to persuade the local people to build a piped water supply.

1. How would you start to persuade the local people? For example would you try to make a speech to a large meeting or would you talk to individuals. If you choose a large meeting, who would you like to attend the meeting and how would you persuade them to come.
2. What rumours and objections about piped water supplies might you hear?
3. How would you respond to these rumours and objections?
4. What advantages do you think would be persuasive?

5. Why do you think some people don't like the idea of piped water?
6. Would you force the village people to build the water supply if you had the power?

Notice that these questions are specific enough to start the students talking and to provide some structure for the discussion. But they also allow students to express different opinions and so begin to form or change their attitudes.

Activity

Write down the instructions you would give to a small group meeting. The instructions should help the group to think about parts of their job where attitudes are as important as knowledge or skills. The aim of the discussion should be to encourage the students to talk about your questions and so develop their attitudes. As an example, you might like to think of instructions which would encourage students to be more careful in their use of medical equipment.

Role-playing exercises

Attitudes are very important in communications with people. If you respect a person you will listen to him and speak to him in a different way.

Attitudes to people will often be improved if you understand the other person's point of view. So, one way of teaching attitudes is to give the students some experience of what it is like to be a patient or a mother with a poorly nourished child, or a shopkeeper who thinks that the health inspector is unreasonable. This can be done by using the technique of role-playing.

In this technique the students act the parts of different people and so begin to experience some of the feelings of these people.

The technique is also very useful in teaching communication skills and is described in more detail in Chapter 9.

Conclusion

Attitudes are important even though they are difficult to define, test or teach. The ideas in this Chapter are just suggestions, because there are no widely accepted methods of teaching attitudes. It is certain that what you do *will* change students' attitudes. It is less certain exactly what that change will be.

Methods of teaching skills

Teachers often use the following patterns when they teach skill

1. Describe the skill - explain what the skill is, why it is important, when it should be used.
2. Demonstrate the skill - let the students see an expert (often the teacher) perform the skill.
3. Arrange practice sessions.

This pattern is generally sensible, although the stages can not be completely separated.

For example it may be more interesting to start with a demonstration. Or students may need more demonstration after they have had some practice.

Often the skill is described in a lecture (theory) then some time later maybe weeks later the students do the practice (practical). This is *not* desirable although there may be administrative reasons for doing it this way. Ideally *theory and practice should be taught together*.

Describing a skill

The first stage in teaching a skill is to describe the skill. This will involve explaining why the skill is important and why the students must learn it. It will involve explaining when the students should use the skill and it will involve explaining the stages in performing the skill.

For example if you are teaching how to give an injection, most students will know vaguely what an injection is and why it is important. But if you are describing the skills involved in persuading mothers to bring their children to an immunisation clinic, some students may not realise why this is important.

When you explain the stages in performing a skill, a task analysis will be very helpful. This is because the task analysis gives a list of what is done and the order in which each stage is done. The task analysis will help you, the teacher, to be very clear in your own mind about the stages. It can also be used directly by the students. If you use task analysis in this way, it should be rewritten so that it is useful for the student. Look at the example below which is used for teaching hospital nurses. (Notice that the words used are sometimes difficult for students - maybe you could improve them. Notice also that this is the way medicines are given in the hospital where the nurses are trained - it is not necessarily the way *you* would train nurses to do this particular job).

Examples of instructions for a student based on a task analysis

Giving medicines by mouth

Equipment

Trolley containing:

- All medicines required.
- Graduated medicine glasses.
- Teaspoons.
- Jug of cold water
- Small tray or plate for carrying drug to bedside.
- Receiver for used spoons
- Medicine cloth.
- Soapy water and clean water.

Giving the medicine

1. Identify the name of the patient.
2. Read the prescription carefully.

Give medicine at the time ordered and give before or after meals, as instructed. If before meals, give twenty minutes before. If after, give immediately after.

3. Select the medicine and check the label with the prescription.

4. Ensure that the label is kept clean (if liquid medicine) by holding the bottle with the label against the palm of the hand.
5. Shake the bottle.
6. Hold the medicine glass at eye level while the medicine is being poured.
7. Shake the prescribed number of tablets or pills on to the lid of the container and from there, on to a spoon and then on to the back of the patient's tongue, or mix with water.
8. Place powders on a spoon and then on the back of the patient's tongue, or mix with water.
9. Make unpleasant medicine as agreeable as possible by following their administration with a sweet or drink of fruit juice, if this is allowed.
10. Stay with the patient until he takes the medicine. Do not leave it on the patient's locker.
11. Note administration on Drug Recording Sheet.

This example shows:

1. The instructions could be used as a handout when the teacher describes the skill.
2. The students can keep these instructions and refer to them when practicing the skill or put them into their own manual for reference after the end of the course.
3. The written instructions make quite clear what standard of performance is expected. (All teachers and examiners will follow the same standard).
4. Because the instructions are written down, students can assess each other and so help their own teaching.

These written instructions are sometimes called *procedure cards* or *job-aid cards*. Again the technical names are not very important. What matters is that some teachers have found that they are very useful and that many more teachers could use them.

Demonstrating a skill

When the skill has been described it should be demonstrated. Sometimes the demonstration is done at the same time as the description.

There are some obvious points about demonstrations which are easy to explain, but are more difficult to follow.

1. *The demonstration must be correct.* Obviously you must not demonstrate bad methods. Also you must make sure that any equipment you use will be available to the students when they are working in the field. You should also make sure that your demonstration does not use methods which require too much time or too much skill. For example if you are demonstrating how to prepare posters for a talk to mothers in a village, you should make sure that you only use the kind of paper, paint and pens which will be available to your students.

"The demonstration must be visible..."



2. *The demonstration must be visible.* All the students must be able to see what you are doing. This is so obvious but often teachers make mistakes here. The problem is most serious when there are large numbers of students or when the skill you are demonstrating cannot be seen from far away.

The solution here may be to use a film or even a television recording. But for the very many teachers who do not have this kind of equipment, the only way is to repeat the demonstration many times. Senior students or teaching assistants may help you here.

If some students cannot see properly repeat the demonstration

3. *Explain what you are doing.* It is not enough to perform the skill correctly and visibly. You must explain what you are doing and emphasise important points. A handout, or written set of instructions will help you here.

An example of using a handout to help explanation

Preparing for an intramuscular injection

1. Put the two parts of the syringe and the needle in a metal container (a metal pan or tin). Cover them with water and boil them for ten minutes.
2. Wash your hands with clean water and soap. Rub your hands together in the soapy water until they are really clean. Rinse your hands in clean water.
3. Clean the lid of the little bottle (which contains the penicillin or any other substance to be injected), using a swab wetted with a disinfectant such as surgical spirit, alcohol, rub hard two or three times.

4. Using the same swab, rub two or three times the place where you are going to put the needle in the buttocks for the intramuscular injection. On the buttocks choose a place for the injection which is fairly high up and towards the side.
 5. Put the two parts of the needle together and fit the needle in firmly. To do this, take the needle at its base, that is to say by the part which is not sharp
- and so on

This kind of handout might be used in the following way. The teacher would explain why intramuscular injections are given. He would then give the handout to the students. Then he would demonstrate each stage in turn by showing the students exactly what has to be done. Whilst he is doing the demonstration, the teacher would keep on referring to the handout. For example, he might say *"now we come to stage 2. You should wash your hands like this. Notice that the water must be clean and that I have to use soap. It is not enough just to get the hands wet. You must rub your hands together hard to remove any dirt or risk of infection ..."*

An advantage of using the written handout whilst you demonstrate a skill is that the students will become familiar with the handout. They can then keep the handout for revision or to refer to later.

Another advantage is that you are giving the students a record, so they do not have to take notes. This means that they can concentrate on watching the demonstration, rather than trying to do two things at the same time.

Providing practice in performing skills

The most important stage in teaching students how to perform a skill is the practice. Unfortunately this is often the most difficult to organise and can take the most time. Despite these problems, teachers must make sure that students have plenty of opportunities for this practice.

The main features of a good practical teaching session are:

- All students practice the skill.
- The students receive feedback about how well they are performing the skill.

The remainder of this chapter describes methods which the teacher can use. These are:

• Role-playing	(8.6)
• Projects	(8.7)
• Simulations	(8.8)
• Job	(8.9)

experience)
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This is not the complete list of possible methods. Rather it gives some ideas about some of the possible methods. Every teacher can adapt these methods, read about other methods or develop new methods to suit the specific needs of his students.

Using role playing to teach skills

Perhaps communications skills are the most difficult group of skills to teach. This is because there are fewer definite rules to follow. For example it is hard to decide exactly what makes an explanation clear or persuasive.

Because of this, students need to develop their own way of communicating and so, of course, they must have plenty of practice. This practice should be supervised by a teacher, a senior student or an assistant whenever possible.

Role-playing is one method which is useful. In this method the students act different parts as if they were in a play. But instead of words and parts the different students are only given an outline of a situation. See the example below

Example

Ask student A to act the role of a health worker trying to persuade a mother to have her baby immunized against polio.

Ask student B to act the role of the mother. Explain that the mother is worried because she has heard that the immunization is dangerous and that her mother does not believe immunization is necessary. However, she must be persuaded although she respects her own mother.

Ask student C to act the role of the grandmother. The grandmother expects her opinion to be followed. None of her babies were immunized and all of them grew up to be strong and healthy. She believes immunization is unnecessary and dangerous.

Now tell the role players that the health worker is talking to the mother and grandmother in the health centre. Ask the role-players to act the parts you have given them by talking and reacting in the way they think that the mother, grandmother and health worker would behave.

Ask the other students in the group to watch and listen to what happens. They should note down things which the health worker does well and also the mistakes he or she makes.

They should think how they would have talked or acted differently. What other information would they have used? Would their manner have been different.

Probably the role-playing will last for only a few minutes. Now comes the very important stage - the discussion.

Ask various students how they would have behaved and invite discussion from the group as a whole about the way the health worker behaved. Ask them also how the grandmother and mother felt. Would the grandmother feel her experience was made to seem silly. Would the mother have felt bullied? As the teacher you should try to start the students thinking about the emotions of the

people in the role-playing. The students should also be made aware that facts are not enough for good communication.

This then is an example of a role-playing exercise. Many other examples could be thought of which would help students to understand the problems of communication. The examples could be fairly simple like the one above or they could be made more complicated. For example you might add extra information such as the news that a baby in a neighbouring village died soon after immunization of a different disease. Or the husband might come into the health centre during the discussion. He might have strong opinions about immunization - either for it or against it.

Whatever the situation you choose to use, the students will need some reassurance. Some may be very shy or afraid of making mistakes.

It is probably not wise to force any student to take on a role until they have seen other students in action. You should try to keep the mood fairly light-hearted - and make quite sure that the students know that this is purely a learning experience and not an assessment!

Whilst this is a very useful technique in practicing skills and giving students insight into communication, there are some limitations. The main one is that this technique should not be used with groups of more than about 25 students. The reason is that the method depends on the discussion at the end when *all* students should take part. With large groups this is impossible.

A second limitation is that students acting as grandmothers are only *acting*. Therefore, the students should *also* have experience of communicating with real people with real opinions and real personalities.

Although these limitations are important, role-playing is still a very useful method in helping with communication skills.

Projects

Projects are an important part of many longer courses. In a project the student - or a group of 3 or 4 students - is asked to attempt a specified task. For example, the students might be asked to find out about the health problems in a village - or they might be asked to find out what superstitions school children have about nutrition or hygiene.

When the students do the project work they will find out facts. But they will also increase their skills in talking to people, in collecting and reporting information and probably in other areas as well. The exact skills will depend on the project chosen.

Ideally projects can be very valuable learning experiences but they can go badly wrong. Teachers must give enough help and encouragement - without doing all the work. At the end of the project the reports should be presented to the whole class of students so that every student can benefit from the experiences gained in all the projects - and this takes time.

Projects do work - provided the teacher is enthusiastic, gives enough help and there are not too many students. They are very difficult to organise when there are more than about 40 in a class.

Simulators

Simulators are extremely difficult to define in any way that is both reasonably simple and complete. It is better to quote some examples. An orange can be used as a simulator, when students use it to practise injections. In this case the orange simulates the skin and flesh of the patient. Other simulators are used to train pilots how to fly aircraft. These flight simulators have all the aircraft controls and instruments which are linked through a computer to reproduce the behaviour of the aircraft. So simulators can be extremely complicated and costly or they can be very simple and cheap.

Some simulators can be bought. For example, a simulated patient made out of plastic can be used to practice insertion of an endotracheal tube. Other simulations can use paper and pencil. These are called patient management problems and are described in the assessment section.

The main aim of simulators (whether they are simple like oranges or very complicated) is to give the student some experience and practice before the student works with more expensive equipment or with patients. They are not intended to complete the training.

A problem facing teachers is that simulators are not widely available. Instead the teacher must use his imagination to think of ideas like the orange which are useful for his own students.

Job experience

Perhaps the most useful practice a student can have is to actually do the job itself. Naturally students can not do this in an uncontrolled way.

One way is for students to join qualified health care staff for periods of attachment. Ideally one or two students work with the senior health worker to see how the job is done. Gradually the senior health worker or supervisor will ask the student to do more and more of the work. All the time, the supervisor must make sure that the student is not making any serious mistakes and that the student is frequently told what he is doing well, what he is doing badly and how the bad points can be improved.

This job experience is widely used. Ward rounds and attachments to wards are examples of this method. At least one school spends the whole of the second year of a three year curriculum in job experience.

Although this method is widely used it is not always well used. Often ward rounds will have so many students working with one teacher that only one student out of ten or fifteen is actually practicing a skill whilst the others are just watching. This can be very boring and even at its best is not very effective.

At other times the teacher may spend too much time talking and demonstrating. This again the students from getting the practice that they need.

Again the ward round or job experience can turn into a theory lesson with the teacher simply giving an informal lecture.

Despite these dangers job experience can be a most powerful method of helping students to learn skills, so it is worth putting in a lot of effort to arrange for students to work with qualified staff. It is also well worth explaining to the staff that the aim is to provide supervised practice - not to give mere theory lessons.

How much time is needed?

It is very difficult to give definite answers to how much time students need to learn skills. It is almost certainly true that most curricula give too much time to teaching theory and not enough time to learning skills and attitudes. For many tasks, students will often take two to four times as long to master the skills and learn the attitudes as they do to learn the *necessary* facts. There are, of course, exceptions to this general rule. But the implication is clear that a great deal of time must be spent in practicing skills.

Summary

How to teach skills

1. It is absolutely essential to teach students the relevant communication cognitive and psychomotor skills.
2. Skills are usually taught by
 - describing the skill
 - demonstrating the skill
 - allowing every student to practice the skill
3. Role playing, projects, simulations and job experience are some of the ways in which students can practise skills.
4. Probably two thirds or more of the time in every course for health workers should be spent in teaching skills.

(From: Abbatt, Teaching For Better Learning, pp. 50-64)

Session 49, Trainer Attachment 49A: Group discussion

Group Discussion is one of the most common methodologies used in training. It is a process of thinking out loud together, of sharing ideas. The trainer will usually begin a group discussion by introducing a topic and asking participants to comment on the topic. This process is repeated until participants have become involved in their own discussion of the topic.

When to Use Group Discussion

Group Discussion is not always an appropriate methodology and the trainer must consider the topic to be presented. Does the topic lend itself to group discussion? It is important to have participants share their ideas and experiences? Group Discussion can be used when:

- You want participants to generate ideas;
- You want to solve a problem;
- You want participants to share ideas and experiences with each other;
- You want participants to experience task and maintenance functions that occur when groups work together (for the purpose of group building);

- Participants seem to be bored with the topic being presented or with the lecture methodology; group discussion may help regenerate interest.

Preparing for the Group Discussion

- Plan the objective(s) of the discussion. What is the purpose of the discussion? What will the participants gain from the discussion?
- Decide how you will evaluate the discussions. If the discussion is to be evaluated formally by the participants, prepare the questions you will ask and plan how you will review the responses. If the evaluation will be done by the training team, schedule a time and develop the questions that will be discussed.
- What technique will you use to facilitate the discussion? (Role play, Case Study, Brainstorming, Open Questions, Force-Field Analysis, Visuals, are examples.)
- Will the discussion take place in small groups and/or the large group? Plan how you will proceed with each.
- What materials/visuals do you need during the discussion? Make sure they are available prior to the presentation.
- Prepare a list of Open Questions you may need to generate interest in the discussion.

Questioning versus Group Discussion

Group Discussion can be difficult to use effectively. One reason for this is that some trainers confuse group discussion with asking questions. Consider the following differences:

QUESTIONING	GROUP DISCUSSION
a) ask a question;	a) ask a question;
b) get response from participant;	b) get a response;
c) comment on the response;	c) comment on the response or ask other participants to comment on response ("What do you think about that?"; "Have you had a similar experience you 'd like to share?");
d) ask another question;	d) get responses from other participants;
e) repeat the process.	e) ask other questions related to the topic until participants have become involved in their own discussion

Closed versus Open Questions

Group Discussion may fail if the trainer asks the wrong kinds of questions. Closed Questions are most effectively used when you want a short, specific answer. Use Open Questions when you want to get participants involved in a group discussion.

Examples of Closed Questions:

- "Do you agree with that statement?"
- "Have you ever had that happen to you?"
- "Do you think training is difficult?"

Examples of Open Questions:

- "What are your feelings/beliefs about this?"
- "What experiences have you had with this?"
- "What would you do if this happened to you?"

General Hints on the Use of Questions

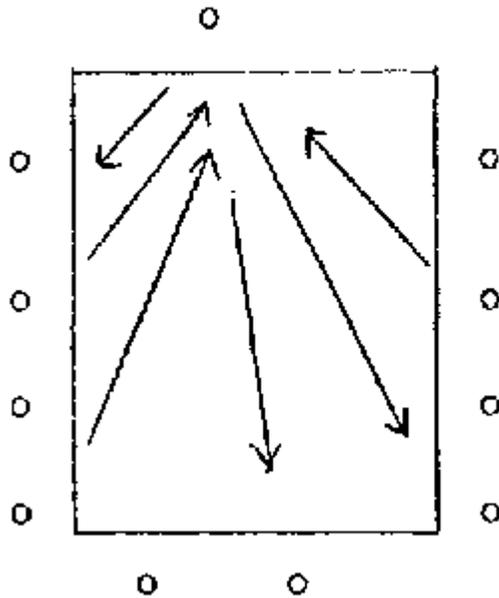
1. Questions should be brief, clear and simply worded.
2. Direct questions should be distributed at random. A fixed order, e.g., clockwise around the group, should be avoided at all costs. They should also be well distributed among the various members of the group.
3. Questions should, as far as possible, cover one point only.
4. Questions should, where possible, be related to the ability and experience of the person to whom they are addressed.
5. Having asked the question, give the members of the group time to think before expecting an answer.
6. Don't use rhetorical or leading questions to try to get out of a difficult or awkward situation in the group. This is more likely to make the situation worse.

Using Questions to Establish the Right Pattern of Discussion

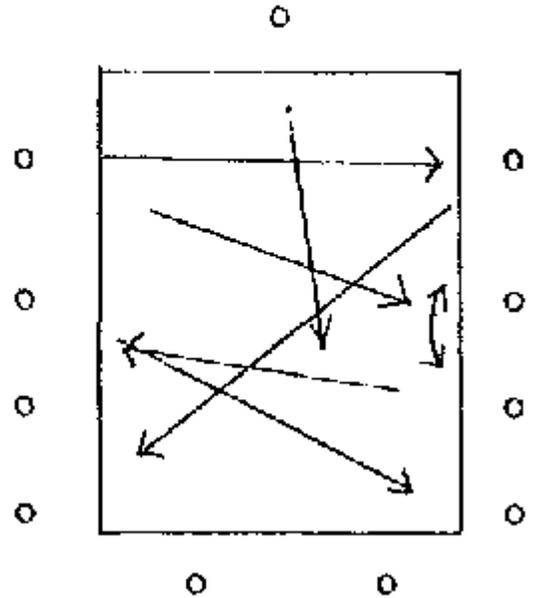
Finally, on the use of questions, here are two diagrams which give us a bird's eye view of the pattern of discussion we are trying to achieve.

Figure

NOT THIS



BUT THIS



(From: Trainer's Resources Guide, Peace Corps)

Session 50: Group dynamics

Session 50, Handout 50A: Effective group survey

Session 50, Handout 50B: Task sheet

Session 50, Handout 50C: Observation worksheet - Task functions

Session 50, handout 50D: Observation worksheet - Maintenance

Session 50, Handout 50E: The decision-making process

Session 50, Trainer Attachment 50A: Lecturette on group roles and dimensions

TOTAL TIME: 2 hours

OVERVIEW

Participants in this program are expected to design and lead training workshops with a diversity of groups and individuals. To manage group process well, one must understand the forces acting on and within the group which cause its members to behave the way they do. "Group dynamics" includes the communication patterns, decision making methods, member behaviors, and relationships within a group. In this session, Trainees participate in or observe a problem situation which calls for some decisions; afterwards they analyze the group process, the functional roles of members, and decision-making styles. They also discuss how culture affects the dynamics of a group in a multi-cultural training situation.

OBJECTIVES

- To identify and cite examples of task, maintenance, and blocking roles of group members. (Steps 1-5)
- To distinguish between the dimensions of content and process in group work. (Steps 2-5)
- To examine six blocks to decision-making in groups and eight types of decisions, and cite examples of both based on group work here in this training situation. (Step 6)
- To identify potential issues and problems in group work performed in bi- or multi-cultural situations. (Steps 5-7)

RESOURCES

- A Trainers Guide to Andragogy, pp. 134-146. - TOT Training Modules, (Peace Corps)
 Training Manual in Appropriate Community Technology, (Peace Corps)

Handouts:

- 50A Effective Group Survey
- 50B Task Sheet
- 50C Observation Worksheet - Task Functions
- 50D Observation Worksheet - Maintenance Functions
- 50E The Decision-Making Process

Trainer Attachment:

- 50A Lecturette on Group Roles and Dimensions

MATERIALS Pens, paper, newsprint.

PROCEDURE

Trainer Note

To lend both credibility and cultural accuracy to this session, ask at least one host country member of the training staff to participate in the discussion as a cultural resource person. Work with this person ahead of time to ensure he or she understands the theory of group dynamics and has a solid cross-cultural perspective on it. Possible issues to discuss ahead of time with the resource person include: rules for deference to elders, strong hierarchical structure in groups, restrictions on women's participation in discussions, the needs of the individual vs. the needs of the group, and so forth.

Step 1 (15 min)

Effective Group Survey

Introduce the session by reviewing the objectives and passing out Handout 50A (Effective Group Survey). Ask participants to read and complete the survey instrument based on how they perceive this group working together during the past few days of the training program.

After the group has finished filling in the survey, ask for volunteers to share with their peers items on the survey for which they gave the group a high rating and items for which they scored the group low. Generate discussion among participants regarding why group interaction may be low or undeveloped in some areas in this training group and ask them to explore reasons why it is valuable for trainers and participants alike to understand group functioning and dynamics.

Explain that the remainder of this session is designed to provide participants with a greater understanding of how groups work so that they can become better group leaders as well as better group members.

Step 2 (10 min)

Lecturette on Functions of Group Members and Dimensions of Group Life

Give a short lecturette (10 minutes) on the various functions of group members (including task, maintenance, and individual) and the two dimensions of group life (content and process). Use Trainer Attachment 50A as background material and provide the group with relevant examples of the concepts you are presenting.

Trainer Note

If one of the participants has experience in working with groups and has previously studied group dynamics, ask him or her to present this lecturette to the group.

Step 3 (10 min)

Introducing the exercise for Observing Task and Maintenance Behavior

Explain to the group that they will now participate in an exercise that will allow further exploration of the various roles people assume during group work. Ask participants to count off and form Group One and Group Two. Ask Group Two to leave the room and wait for further instructions.

Give Group One Handout 50B (Task Sheet) and ask them all to read it carefully and be prepared to discuss it in a few moments when the other group returns. Also give Group One copies of Handouts 50C (Observation Worksheet - Task Functions) and 50D (Observation Worksheet - Maintenance Functions). Tell the group to skim over these two sheets but hold any questions or discussion for later. Finally, ask them to move their chairs into the inside of the circle, forming a smaller circular area.

Join the members of Group 2 and explain that they will be the observers in the exercise. Give half of the observers Handout (Observation Worksheet Task Functions) give the remaining half Handout 50D (Observation Worksheet - Maintenance Functions). Ask them to follow the directions on the worksheets and record the respective behaviors they observe among their peers during the exercise. Answer any questions they might have regarding the roles described on the sheet.

Step 4 (30 min)

The Fishbowl Exercise

Bring Group Two back into the training room and create a "fishbowl" by having them form an outer circle around the members of Group One. Explain that no talk between groups is allowed.

Have Group One conduct the discussion assigned in the task sheet, while the observers watch and record data on the observation sheets. Stop the action after 15 minutes. Ask the observers to switch positions with the participants in Group One. Ask Group One to now look at the Observation sheets they received previously and ask the observers (now in the inner circle) to discuss their findings from the exercise.

Step 5 (15 min)

Round table Discussion of Group Functions

Ask participants to form a large circle once again and have a general discussion around the following points:

- What most aided the task performance and maintenance building activity of the group?
- What most impeded task maintenance, including specific actions that blocked the group process (individual-oriented behaviors)?
- Appropriateness or timeliness of particular task and maintenance functions.
- Degree to which this group has developed a healthy balance between task and maintenance
- Cultural implications of task and maintenance functions for interactions between PCVs and Host Country Nationals.

Trainer Note

Be sure this discussion is among all participants and not just the observers from the previous step. It is important here to generalize beyond the fishbowl exercise.

With regard to cultural implications, ask participants to respond to the commonly-held image that Americans are generally task-oriented compared to most other cultures. Have participants think back on group situations involving mostly or only host country nationals and describe the perceived task and maintenance levels; then have them compare this perception with the activities and ideas about group work generated during this session. If a cultural resource person is present, ask him or her for a commentary on the norms in the host culture and the differences in task and maintenance functions across cultures.

Step 6 (20 min)

Examining Decision Making

Distribute Handout 50E (The Decision-Making Process) and have participants read it. Ask the group to first cite examples of six blocks to decision-making they've either observed during this training or in the past.

Focusing the participants on the various types of decision-making, have them discuss potentially satisfying or frustrating consequences of each type. Ask participants to recall examples of these types which emerged during the fishbowl exercise.

As in the previous step, have participants consider the cross-cultural implications of styles of decision-making: What have the participants observed regarding the ways in which host country people working in groups make decisions? How does this compare to the preferred styles of this group?

Trainer Note

Consensus or mutually shared decision-making is often considered the most appropriate form of decision-making for community development situations. Although it may require more time and

increased sensitivity to group members, it provides for and promotes the involvement and commitment necessary to group cohesiveness and cooperation. On the other hand, consensus may be a relatively unused or inappropriate form of decision-making in the host culture and future PCVs need to recognize its place (if any) and/or potential. The trainer or cultural resource person should provide culture-specific information to help participants relate the theory to "real" people and situations.

Step 7 (10 min)

Identifying Further Issues to Investigate

Wrap-up the session by having the group consider the various theories and ideas dealt with during this session. Ask them to brainstorm a list of specific points or issues related to group dynamics in the host culture or in a bi-cultural situation that they want to investigate further. When the fiat is made, have them consider how they might go about finding the information or opinions.

Trainer Note

If any time is left over, let participants address some of the points from the list to the cultural resource person.

As an alternative to this wrap-up, ask the cultural resource person to reflect on the feasibility of using some of the ideas which came out of the session in workshops with host country health workers.

Session 50, Handout 50A: Effective group survey

Group leaders, group facilitators and group members may sometimes want to assess the group's capability for working productively. This survey can be used by one or many, with the results posted and discussed toward the end of a meeting.

Directions: Circle the letter opposite each item on the survey below that best describes the group's interactions.

The scale used is:

- A - All group members
- B - Most group members (two-thirds or more)
- C - About half the group members
- D - A few group members (one third or less)
- E - None of this group

During this (or the most recent) session, how many group members, including yourself.

1. Gave due consideration to all seriously intended contributions of other group members?

A	B	C	D	E
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2. Checked (by paraphrasing, etc.) to make sure they knew what was really meant before agreeing or disagreeing?	A	B	C	D	E
3. Spoke only for themselves and let others speak for themselves?	A	B	C	D	E
4. Viewed all contributions as belonging to the group, to be used or not as the group decided?	A	B	C	D	E
5. Had the opportunity to participate in the group if they desired to do so?	A	B	C	D	E
6. Tried to find the reason if the group was having trouble getting work done?	A	B	C	D	E
7. Helped the group make decisions openly rather than by default?	A	B	C	D	E
B. Helped bring conflict into the open so the group could deal with it?	A	B	C	D	E
9. Looked upon behavior which hindered group process as a group problem, rather than as a "problem member"?	A	B	C	D	E

Session 50, Handout 50B: Task sheet

SAMPLE TOPIC I:	YOUR COMMUNITY CLINIC HAS JUST BEEN SELECTED TO SERVE AS A PILOT MODEL FOR THE DISTRIBUTION OF ORS PACKETS. THE REGIONAL MINISTRY OF HEALTH OFFICE HAS INFORMED YOU AND YOUR TEAM THAT 50,000 PACKETS WILL BE ARRIVING IN A FEW DAYS AND THAT YOU SHOULD DECIDE HOW YOU WILL DISTRIBUTE THEM IN YOUR AREA AND WHO WILL BE THE PRIORITY RECIPIENTS. YOU HAVE 15 MINUTES FOR THIS TASK.
SAMPLE TOPIC II:	YOUR COMMUNITY HAS JUST BEEN GIVEN A ONE-TIME FUNDING IN THE AMOUNT OF \$500.00 FOR THE CLINIC'S HEALTH EDUCATION OUTREACH PROGRAM, DECIDE ON THREE PRIORITIES FOR SPENDING THE MONEY AND ASSIGN A PERCENTAGE OF THE FUNDS TO EACH PRIORITY AREA. YOU HAVE 15 MINUTES FOR THIS TASK.

(NOTE: Any relevant topic of interest to the group may be chosen, but the topic must include a decision to be made and a time limit.)

Session 50, Handout 50C: Observation worksheet - Task functions

DIRECTIONS: Observe members in "fishbowl" and record the number of times each behavior is used by each member.

3. ENCOURAGING - being friendly, warm, and responsive to others; nonverbal or verbal approval or acceptance by expressions.									
4. COMPROMISING - admitting error; modifying in the interest of group cohesion or growth.									
5. STANDARD SETTING AND TESTING - testing whether group is satisfied with its procedures: pointing out explicit or implicit norms which have been set.									
6. SENSING AND EXPRESSING FEELINGS - sensing feeling, mood, relationships within the group; sharing own feelings with other members; soliciting feelings of others.									

(From: John Ingalls, A Trainers Guide to Andragogy, Waltham: Data Education, Inc., 1973)

Session 50, Handout 50E: The decision-making process

We all live and work in groups and undoubtedly have experienced difficulty in arriving at group decisions. Some groups tend to break down when confronted with a decision for which a consensus is required. Others get bogged down in the interminable discussion of minor points or irrelevant side issues. Still others seek escape from their anxiety in Robert's Rules of Order, voting, or calling upon the "chairman" to establish control.

Dr. Kenneth Benne (1960) has analyzed the prevalent reasons for the difficulty groups have in making decisions and has identified the following six blocks to decision making in groups.

1. Conflicting Perception of the Situation

If group members view the problem at hand in different ways, communication can be impeded, resulting in a breakdown of the group.

2. Pear of Consequences

The possible outcomes of an impending decision can overwhelm a group. Outside pressures on individuals or on the entire group may exert a paralyzing effect on its ability to come to a decision.

3. Conflicting Loyalties

Every group member belongs to a number of different groupings than the one he may presently be engaged in. These multiple memberships can operate as hidden agendas or conflicting pressures within the decision-making group.

4. Interpersonal Conflict

Personal differences or personality clashes can provoke defensiveness, antipathy, and biased discussion, preventing a sound, fair decision from being made.

5. Methodological Rigidity

Many groups are so frozen into Robert's Rules of Order or similar rigid methods for decision making that they are prevented from inventing or using other methods when the nature of the decision calls for one (e.g., consensus).

6. Inadequate Leadership

When the entire group does not share leadership functions and relies too heavily on a designated leader (who may or may not be sufficiently skilled), then no group decision can be made and the commitment and responsibility to any decision is lessened.

TYPES OF DECISIONS

The following types of decision making are familiar to all of us:

1. Plops

A decision suggested by an individual to which there is no response (e.g., "I suggest we shelve this question."silence).

2. Self-authorization

A decision made by an individual who assumes authority (e.g., "I think we should all write our ideas on the blackboard." - and proceeds to be the first to do so).

3. The Handclasp

A decision made by two or more members of the group who join forces or decide the issue in advance (e.g., "That was a helpful comment, John. Yes, that's the course we're going to take.").

4. Baiting

A decision made by pressure not to disagree (e.g., "No one objects, do they?"), or a decision made by pressure to agree (e.g., "We all agree, don't we?").

5. Majority Rule

A decision made by some form of voting.

6. Unanimity

A decision made by overt and unanimous consent, often without discussion, to the degree that everyone openly agrees it is probably the best decision. This is not necessarily unanimity, but it constitutes a basic agreement by all group members.

7. Polling

A decision made by a form of voting which inquires,

"Let's see where everyone stands." - and then proceeds to tabulate the already expressed majority decision.

8. Consensus

A decision made after allowing all aspects of the issue, both positive and negative, to be put forth

(From: John Ingalls, A Trainers Guide to Andragogy, Waltham: Data Education, Inc., 1973)

Session 50, Trainer Attachment 50A: Lecturette on group roles and dimensions

TASK, MAINTENANCE, AND INDIVIDUAL DIMENSIONS OF GROUPS

1. Every one of us from time to time finds ourselves in a group that has either been assigned a task or that assumes one. It is the desire of the group to move toward the accomplishment of its task.

2. This can only be done if the group is somewhat successful in maintaining the group as a group.

3. In addition, the group must, in some way, meet the needs of its individual members.

4. If the above three factors are accomplished effectively, the group will perform competently.

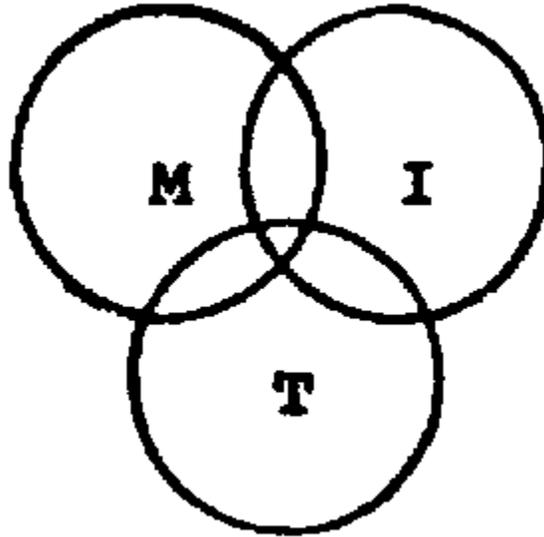
The "Task" (T) of a group has to do with the work of the group, while "Maintenance" (M) has to do with interrelations of members within the group, and (I) has to do with the relationships between the group and the individual members.

It is obvious that the task is a very important aspect of group life and can never be regarded as incidental. On the other hand, for a group to accomplish its task, it must be kept together. Individuals in groups have personal needs for feeling accepted and being involved in decision making. In working on tasks, we can become insensitive to these and other needs being expressed verbally or symptomatically through the action of small groups within the work group. Our insensitivity results in the group's action being blocked. We then often become aware of the need to maintain the group or there soon may be no group left to get the task done (or, if done, it will be done at the cost of performance and efficiency). So we stand within the tension between specific, objective tasks for which the group exists and the important issue of caring for group members so that the group functions effectively.

Within groups, certain leadership behaviors can be identified which help a group accomplish its task and maintenance functions. When these behaviors are also performed by the members group effectiveness increases.

Groups are likely to operate at maximum effectiveness when all members perform both task (T) and maintenance (M) functions, and regard them as their responsibility rather than solely the responsibility of the designated leader.

Figure



CONTENT AND PROCESS LEVELS IN GROUPS

CONTENT

One may think of content as that material which the group is discussing, i.e., ideas, notions, proposals, opinions, facts, etc. - *What* an efficient recording secretary would write.

PROCESS

One may think of process as the underlying factors which exist in a group situation, i.e., interpersonal relations, feelings, attitudes, mode of handling disagreement and agreement, general tone and climate - *How* the group functions.

When we observe *what* the group is talking about, we are focusing on the *content*. When we try to observe how the group is handling its communication, i.e., who talks how much or who talks to whom, or what task and maintenance functions are being performed, we are focusing on group process.

Both of these dimensions play an important part in determining the degree of successful group functioning. As one pursues a content level of discussion, it is helpful to notice the *process* by which such issues are handled. Recognizing these dynamics and skillfully utilizing them as group resources can greatly aid the performance of the group and increase the satisfaction of group members.

(From: John Ingalls, *A Trainers Guide to Andragogy*, Waltham: Data Education, Inc., 1973)

Session 51: The role of the trainer

Session 51, Handout 51A: Training style inventory

Session 51, Handout 51B: Training style inventory interpretation sheet

Session 51, Handout 51C: Training styles continuum

Session 51, Handout 51D: Group identity phases of group growth sheet

Session 51, Handout 51D: Discussion leadership guidelines for trainers
Session 51, Handout 51F: Co-training
Session 51, Handout 51G: Individualizing instruction

TOTAL TIME: 3 hours

OVERVIEW

After exploring several concepts of group dynamics, participants need to consider the role of the trainer as a leader or facilitator of group work, and identify specific trainer behaviors which promote a climate of learning for different kinds of workshop groups and situations. In this session, participants complete a training styles inventory to find out their personal trainer style and analyze a range of trainer roles in relation to specific learners and stages of group growth. Later, they develop a trainer profile that describes the kinds of behaviors and skills they will need for typical future workshop situations and use it as a base for assessing their own abilities in facilitation.

OBJECTIVES

- To describe three different types of learners and their corresponding trainer roles and behaviors. (Steps 1, 2)
- To identify the participant's own personal training style and specific ways that style affects the workshop climate and the trainee. (Steps 1, 2)
- To examine four stages of group growth and their relationship to trainer roles. (Step 3)
- To develop a trainer profile of behaviors and skills necessary for typical workshop situations and use it as a basis for assessing individual participant skills and abilities. (Step 4-6)

RESOURCES

- TOT Modules (Peace Corps)
- A Trainer's Resource Guide (Peace Corps)

Handouts:

- 51A Training Style Inventory
- 51B Training Style Inventory Interpretation Sheet
- 51C Training Styles Continuum
- 51D Group Identity and the Stages of Group Growth
- 51E Discussion Leadership Guidelines for Trainers
- 51F Co-Training
- 51G Individualized Learning

MATERIALS Newsprint, markers, notebook paper

PROCEDURE

Step 1 (35 min.)

Training Styles Inventory

Introduce the session by explaining to participants that after examining the dynamics of group work it is helpful to focus on the various types and needs of learners and identify what kind of trainer role one should assume for particular groups and training situations.

Distribute Handout 51A (Training Styles Inventory) and explain to participants that it is designed to help them understand their own preference of trainer style and to provide a general base for discussion. Tell participants they will use the next 20 minutes to read the instructions, complete the inventory and tabulate their scores on the attached score sheet. Answer any questions the group might have.

Step 2 (30 min)

Interpreting the Inventory

After the group has completed and scored the inventory, distribute Handout 51B (Interpretation Sheet) and Handout 51C (Training Styles Continuum). Give participants time to look over the two sheets. Ask the group for their immediate reactions to the inventory regarding how well it reflects what they consider to be their particular style. Ask for a show of hands in each category for which participants scored highest, then facilitate a discussion around the following questions:

- What style of learner are you as a participant in this program? (One particular style, two, or all three at differing times?)
- What kinds of training styles are reflected in this training program? How well do our trainer roles and behaviors match the learner styles that you, as participants, represent?
- What happens when you have a workshop group that includes all three learner styles? What are some things a trainer can do to meet the needs of such a group? (peer-teaching, reinforcing learning with handouts, co-facilitation, etc.)
- What are the implications for a trainer who scores extremely high in one training style/trainer role?
- How viable is co-training for the workshop situations in which you will be involved?
- What are some advantages/disadvantages in co-training?
- What characteristics of the host culture affect learner and trainer styles? What modifications in trainers' roles might be necessary to ensure cultural sensitivity during workshop situations?
- What are some consequences of each trainer role in training workshops where the leader is from one culture and participants are from another?

Trainer Note

The trainer and/or a host-country staff member should help the participants answer the last two questions in the previous list.

Some points to investigate about potential host-country workshop groups would include:

- whether participants have been schooled in a formal/traditional mode or informal.
- existing social/political hierarchies.
- male-female status and privileges.

- cultural norms regarding cooperation and competition.

Step 3 (15 min)

Trainer's Role in the Stages of Group Growth

Distribute Handout 51D (Group Identity and the Stages of Group Growth) and ask participants to briefly look it over. Relate the description of needs to the task-maintenance/content-process dimensions studied in the previous session (Group Dynamics); then have the group focus on the four stages of group growth. Ask them if they can recognize some or all of these stages in their own group development here in this training, or if they can think of an experience in the past when they "grew" through all four stages. Have someone illustrate the model with one or two concrete examples. Ask the group to explore how the stages of group growth affect the trainer's role and vice-versa. To stimulate discussion, show participants different combinations of learning styles and group stages and ask them to discuss appropriate trainer roles for each combination.

Trainer Note

Give participants real examples for the above-mentioned configurations, i.e., use real groups, real technical content areas, and actual training situations in which they may find themselves working. If possible, depict the various configurations visually using symbols or stick figures to illustrate points and pose new questions to the group.

15 Minute Break

Step 4 (25 min.)

Developing a Trainer Profile

Ask participants to reflect on the issues and ideas which have been raised thus far in this discussion. Ask them to identify several primary factors which help the trainer define what his or her role should be and list these on newsprint.

Have participants consider the factors on this list as well as other pertinent information regarding CCCD technical areas, characteristics of community/clinic health workers, Peace Corps programming goals, etc., and draw some conclusions on the trainer role they envision themselves assuming in most situations. Have participants state this role in terms of a trainer profile which lists behaviors and skills called for in that role. Write the trainer profile on newsprint and tell participants to also write it down in their notebooks.

Ask participants to privately rate themselves, using a scale of 1 to 5, on their ability to perform each of the behaviors or skills listed in the profile. Have them circle three areas on the list they would like to especially improve during the remainder of the training course.

Trainer Note

Some of the factors which help trainers define their role include:

- kinds of learner styles represented in the workshop group.

- the preferred trainer role of the workshop leader and the ability of that leader to adapt to another role.
- experience of the group members as a group (i.e., is it a newly-formed group or have they worked together previously? At what stage are they in their group growth?)
- goals and length of the workshop.
- technical content of the workshop.
- cultural/social homogeneity of the group.
- cultural norms regarding group work, learning, feedback.
- physical resources available to the training situation.
- the development-worker role of the PCV.

In most situations the trainer profile for a PCV who conducts short workshops with host-country health personnel would resemble the collaborator role (Column B) from the Training Style Inventory but would certainly contain elements from the other two types. Participants should not feel constrained to select one of these three roles, but rather should develop a list of behaviors that describe the kind of trainer they would like to be for the most typical training situations in which they will be involved. The more specific and detailed the list, the better.

Step 5 (30 min)

Sharing Trainer Problems and Solutions

Ask participants to break into small groups and discuss specific problem situations for workshop leaders. Have them generate the problems drawing on their own experience in this training program as well as the troublesome situations they've observed or found themselves in during the past. For each problem, ask participants to refer to the training styles and their trainer profile and decide what action the trainer should take to help resolve the problem. Ask the groups to be prepared to report to the large group on one of the more interesting/difficult situations.

Trainer Note

Try to include in each small group a participant who has had some experience leading groups in sessions or workshops. If the small groups seem to have trouble getting the discussion started, give them a sample situation or two such as the following:

- In a workshop group of ten, two of the participants are dominating almost all of the large group discussion.
- Two or three participants in a workshop group are not participating actively in the training, even during small group discussion. They seem interested but timid.
- The workshop group appears to be dividing into "cliques" who want to work together during the exercises and practices.
- Workshop participants with a clinical background want more information of a more

complicated technical nature than the content level established for this course. Others in the group feel the content level is appropriate and do not want to change it.

Step 6 (20 min)

Summarizing and Rating Personal Skills

Ask each group to briefly share their trainer dilemma and solution with the rest of the group and comment on any new issues which came out of their small group discussion. Distribute Handout 51E (Discussion Leadership Guidelines for Trainers), Handout 51F (Co-Training), and Handout 51G (Individualized Learning). Explain to the group that the additional information will help them in the future to deal with some very common specific group situations, and collaborate more effectively with co-workers.

Session 51, Handout 51A: Training style inventory

In order to determine your preferences in setting the climate for a training event, think of how you feel a training event should be..... a training event that would be a positive learning experience for you as a participant... one that would be comfortable for you as a trainer to lead. Read each statement and decide if it applies to this experience. If so, place a check mark next to the number in the space provided. If the statement does not describe your training event, leave it blank. After you have completed all the statements, go back and circle the ten (10) statements which for you are the most significant.

- ___ 1. The trainer would present the subject material in the workshop.
- ___ 2. The trainer would participate in the learning exercises with the workshop participants.
- ___ 3. The trainer would design all the activities for the workshop.
- ___ 4. The participants would often critique each other's work with little or no direction from the trainer.
- ___ 5. The participants and the trainer would share responsibility for the subject material.
- ___ 6. Participants would be exploring their curiosity and working to satisfy themselves with little trainer direction.
- ___ 7. The trainer's principal role would be to encourage participants to continue working together, exploring alternatives and moving toward their own goals.
- ___ 8. The trainer would be comfortable in telling the participants of the well-detailed plan and organization of the workshop.
- ___ 9. The participants would be encouraged to develop ways to accomplish their own goals, even if it meant changing somewhat the workshop plan.
- ___ 10. The trainer would make the decisions on what materials to be used in the course.

___11. The trainer would be very accepting of the participants' ideas and thoughts, even if he or she did not agree, or knew them to be wrong.

___12. Participants would be expected to share responsibility with the trainer to adapt the workshop to meeting their needs,

___13. The trainer is likely not to know as much about the subject matter as the participants.

___14. The trainer would allow the participants to make most of the decisions about whether the workshop was successful or not.

___15. The trainer allows the participants' comments and needs expressed during the workshop to influence much of the design.

___16. Participants would be expected to evaluate their own progress through the course.

___17. The trainer would allow the participants to determine how much time should be spent on each topic.

___18. Participants would spend a good deal of time learning from the trainer's well-executed lectures and exercises.

___19. Participants would be expected to challenge the trainer's ideas.

___20. The participants would be told precisely what to expect from the workshop.

___21. The trainer would not need to remain in the room while small group discussion is taking place.

___22. The participants' discussions would always be tightly controlled so that time could be used wisely.

___23. The trainer would almost never make substantive inputs. He or she would not be expected to be knowledgeable about the subject.

___24. The trainer would assume full responsibility for the learning activities.

___25. Participants would be asked to help design the workshop.

___26. The participants would rely on the knowledge of the trainer for many of the substantive answers they are seeking.

___27. The trainer would decide how successful the course was.

___28. The participants would define the subjects and issues that should be covered in the workshop; they would be responsible for looking for answers. The trainer would only assist in helping this to happen.

___29. The participant with his or her boss and the training staff, would decide if the participant would find the course beneficial, Once this has happened, the participant would be expected to attend.

____30. The participant should make the decision on whether or not the course would be beneficial, and should be free to leave during the course if he or she felt it was not helpful.

Directions: Check to see that you have circled 10 items on the inventory. Count the number of checks that you circled that fall in column A, and write the number at the bottom. Repeat for columns B and C.

	A	B	C
1.	_____		
2.		_____	
3.	_____		
4.			_____
5.		_____	
6.			_____
7.		_____	
8.	_____		
9.			_____
10.			
11.		_____	
12.		_____	
13.			_____
14.			_____
15.		_____	
16.			_____
17.			_____
18.	_____		
19.		_____	

20.	_____		
21.			_____
22.	_____		
23.			_____
24.	_____		
25.		_____	
26.	_____		
27.	_____		
28.		_____	
29.		_____	
30.			_____
Total s	A._____	B._____	C._____

(From: Training of Trainers Workshop for Technology Transfer in Water Supply and Sanitation, WASH)

Session 51, Handout 51B: Training style inventory interpretation sheet

Training style inventory interpretation sheet

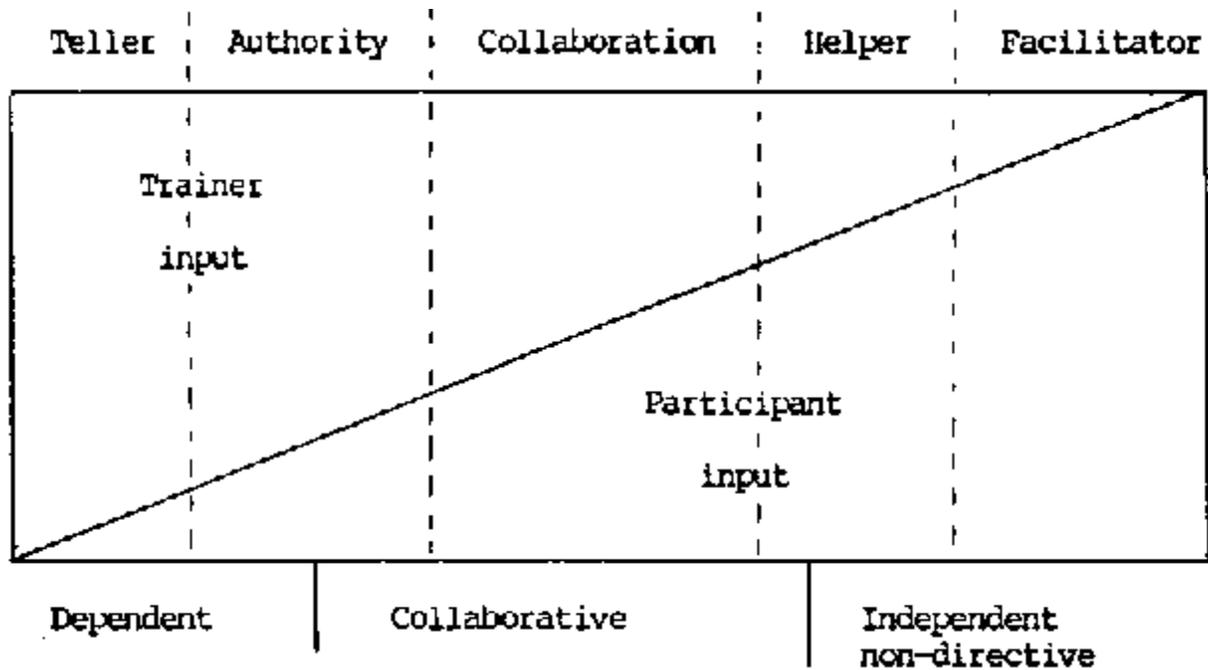
COLUMN	LEARNING STYLE	LEARNING NEED	TRAINER ROLE	TRAINER BEHAVIORS
A	DEPENDENT (may occur in introductory courses, new work situations, languages, courses where learner has little or no information upon entering course)	structure direction external reinforcement encouragement esteem from authority	director expert authority	lecturing demonstrating assigning checking encouraging testing reinforcing transmitting content grading

				designing materials
B	COLLABORATIVE (may occur where learner has come with knowledge, information, ideas and would like to share them or try them out)	interaction practice probe myself & other observation participation peer challenge peer esteem experimentation	collaborator co-learner environment setter	interacting questioning providing resources modelling providing feedback coordinating evaluating managing process observing grading
C	INDEPENDENT (may occur when learner has much more knowledge or skill upon entering the course and wants to continue to search on own, or has had successful experience working through new situation alone, may feel trainer cannot offer as much as he/she'd like)	internal awareness experimentation time non judgemental support	facilitator	allowing providing requested feedback providing resources consulting listening negotiating evaluating delegating

(From: Training of Trainers Workshop for Technology Transfer in Water Supply and Sanitation, WASH)

Session 51, Handout 51C: Training styles continuum

Training styles continuum



(From: Training of Trainers Workshop for Technology Transfer in Water Supply and Sanitation, WASH)

Session 51, Handout 51D: Group identity phases of group growth sheet

During every group interaction, three types of needs are present: individual needs, group needs, and task needs. The length of time spent on each type of need depends on many variables, a major one being the phase of group development.

I (Personal Needs):	Becoming oriented to the group, finding out whether one's personal needs will be met.
WE (Group Needs):	Developing useful membership roles, ground rules, procedures, and group structures as needs emerge.
IT (Group Task):	Focusing on the agreed-on objective(s).

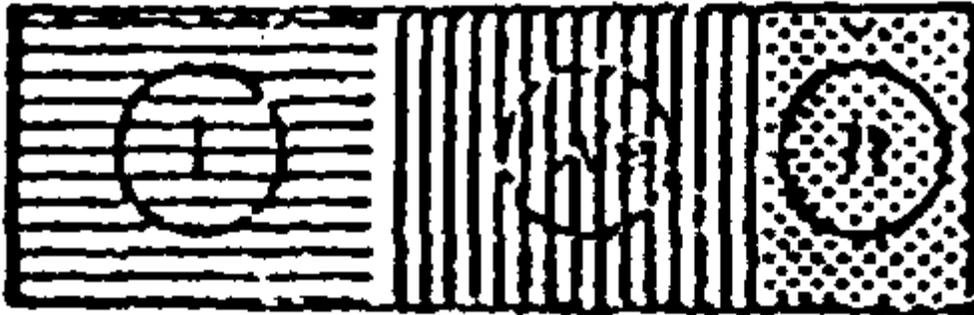
The following diagram depicts different stages in the evolution of a group:

Relative length of time spent on each type of need (by phase):

Phase I: Orientation, testing, and Dependency



Phase II: Organizing to Get Work Done, Intragroup Conflict



Phase III: Information Flow, Group Cohesion



Phase IV: Problem Solving, Interdependence



(From: Ann R. Bauman, Training of Trainers: Resource Manual, National Drug Abuse Center, Washington, D.C. 1977.)

Session 51, Handout 51D: Discussion leadership guidelines for trainers

Discussion is a major way in which your participants involve themselves in training. They will measure the success of a training event in terms of their own involvement in it and the satisfaction they achieved in participating in meaningful discussion. Communication is a two-way street. Lectures and briefings are never as satisfying as interactive sessions where everyone "gets into the act." Your role, then, is to:

- stimulate discussion which provocative questions that are used to initiate thought and maintain a lively interaction.
- keep the discussion meaningful (i.e., relevant to the majority of participants specific to the objectives and agendum).
- get broader involvement and elicit the thinking of as many participants as possible.
- provide facts, policy, and subject matter expertise as needed (from yourself or others in the group).

Putting this role in broadest perspective, you are a catalyst, stimulating and guiding discussion, suggesting its direction rather than pushing or pulling, talking with participants rather than at them, serving as a resource or consultant or catalyst but never dominating or lecturing. With this role in mind, let's examine some suggestions on how you can improve your effectiveness as a discussion leader.

In virtually every workshop there are a few outspoken participants who answer all the questions and carry on the discussion among themselves. It is not their intention to exclude others; rather, it is the nature of the group's composition that some will be active and others passive. Your role is not easy: on the one hand, you should not allow a few to answer all the questions; on the other hand, you do not want to embarrass those who are not participating. It is generally not advisable to say, "Paul we haven't heard from you today. What do you think about this?" Rather, a better approach is to say, "Paul, you've had a lot of experience in handling this kind of problem in your department. What's your advice?"

One of your most frequent reasons for using questions is in directing the group's attention to issues that they are not taking into account. As we mentioned before, however, you don't want to do the thinking for your participants. Rather, you want to nudge them with a gentle clue to discover for themselves the issue they have overlooked. Here are some suggestions as to how questions can be used instead of direct statements:

SITUATION	SAMPLE QUESTION
Participants are going down a side street on an unimportant issue.	"How much importance do you think we should attach to this issue?"
All available information has not been given; you want to remind them without "leading"	"I wonder if we've gotten all the information needed to reach a decision?"

The discussion is wandering from the point; you want to bring it back.	"What point are we now considering?"
A summary of group consensus is needed before moving on.	"I wonder if someone could summarize, maybe at the blackboard, the points where we agree and disagree?"
You feel that the group is not ready to take action.	"When do you think we will be ready to reach a decision and take action?"
Two opposing factions are having trouble reaching agreement.	"Just where, on the continuum between these two points of view, does the best course of action lie?"
The group is prejudiced or acting in self-interest.	"How is our own interest in the outcome causing us to overlook the interest of other groups of supervisor?"

Your participants will vary in verbal ability. Some have no difficulty in putting their thoughts into words and getting ideas across to the group. They enjoy participating. Others may be less articulate, or may lack organization, or may feel overshadowed by others present. It's your job to "translate." Some of the phrases listed below may suggest ways of doing this in a way that is tactful and does not embarrass the participant:

- If understand you correctly, Frank, you're saying that... (restatement by you)
- Let's make sure everyone understands the point you're making, Janet. Would you summarize it for us...(restatement by participant)
- I'm not sure I understand the point that George is making. Would one of you clarify it for me? (restatement by another participant)
- What you're saying, Mrs. Thomkins raises a question or two in my mind. For example, do you...(direct questioning)
- How do the rest of you feel about Phil's comments? (Their feedback will tell Phil what they did and didn't understand),

Remember that the person who is not getting a point across is often not aware of their trouble. You are in a better position to recognize that others in the group do not understand the point. This is why it's important for you to seek clarification in a way that doesn't offend or embarrass,

So much for the person who needs help. How about the participant who rambles on and on with needless restatement and elaboration, who runs the point into the ground (and the audience with it)? You must interrupt; otherwise this person might keep the floor, monopolize the meeting, and waste precious time. You can turn him off tactfully with something like this: "Good point, Barry Let's see how the rest of the group feels about it, or whether there are some other points that we should hear before reaching a decision..."

Your biggest job as a trainer is to see that the participants do not get bogged down in trivial details on the one hand, nor become superficial on the other hand and willing to settle for

solutions (insights, principles, etc.) that are only partial because they fail to take all the issues or information into account. Because you have had more time and experience than your participants in exploring the issues present, you will have a natural temptation to be impatient and to "give away the correct solutions" or the outcome you are looking for. But this does not help to develop your participants' ability as critical thinkers, problem solvers, and decision makers. Nor does it get their commitment through involvement.

Any question you ask has a built-in bias and gives your participants some clue as to the type of response you're looking for. The question, "George, do you think we should have a better performance appraisal system than the old one now is use?" has a high degree of bias - it lets George know that we're expecting a yes from him. In fact, any question that has only two answers (e.g., yes-no, true-false, does-doesn't, more than-less than, etc.) is biasing by its very nature, in that there are often other alternatives that are not presented - the truth often lies in the grey area between white and black.

This is not to say that yes-no questions are not useful during a meeting. Indeed, their major use comes from their ability to polarize... to split the group into two sides on an issue. As participants discuss these two sides, they will come to the realization that the truth lies somewhere between. This type of behavior occurs in such activities as price negotiations, grievance procedures and arbitration, performance appraisal...in short, in any activity where there is give and take, and where a win-win outcome is only possible through compromise.

Almost any question posed to the group could have been phrased in different ways, depending on how much bias, or direction, you wish to give the group. In the table below, you can see a comparison between directive and non-directive wording of the same questions.

DIRECTIVE	NON-DIRECTIVE
" don't agree with that point, Bob."	"What do the rest of you think about the point Bob just made?"
"Agnes, don't you think that's off the topic?"	"Agnes, how does that relate to the topic we're discussing?"
"You don't have any fact to support that position, do you?" (Strong no implied as answer)	"Let's listen now to some of the facts the; support that position."
"I guess we're all in agreement to recommend this program to management."	"Are we ready to make a recommendation to management?"
	or
	"What specific things are we DOW prepared to recommend to management?"
"Do you think the employees will accept the new faces	"How do you think the employees will

that this new merger will bring?" (Strong no implied as answer)

react to the new faces?"

Session 51, Handout 51F: Co-training

Co-training immeasurably adds to the effectiveness of training programs and workshops. In fact, if a program is based on principles of adult education (e.g. active learning, highly participative knowledge and experience shared among all etc.) and utilizes experimental training methodology, co-training is almost a must. In this paper, co-training will be defined, and its advantages and disadvantages pointed out.

Co-Training - What is it?

Co-training is where two (could be more, but not usually) trainers work together to design and conduct a training sessions however, it is much more involved than taking turns. It is two trainers who are merging their skills, expertise and experience to design, plan, and conduct a training session jointly.

The two trainers work collaboratively to design the training session, combining the thoughts of both to determine what they want the session a accomplish and what would be the best method to use. Once the design is prepared, the trainers then plan who takes the lead for delivering which parts of the session. One trainer taken lead responsibility for conducting a part of the session and the other serves as the co-trainer. Co-training does not imply any particular status or skill level difference between the two trainers. There may be skill level differences and that ought to be considered in determining which trainer does what; however, co-facilitation is not meant to set up a senior/junior trainer scheme.

Taking lead responsibility means that one trainer has responsibility for initiating all or most steps of the training session, assigning a role where appropriate to the other trainer, making certain that the training room is in order before the session, organizing hand-outs and other training materials and aids, monitoring time against the design, and so forth. This does not mean that the co-trainer does not do any of these or does not help; it simply means that one trainer takes lead responsibility for seeing that those responsibilities are all carried out by the team. Typically, lead responsibility would shift from trainer to trainer during the course of a session. This is a good to establish with the group the co-equal status of the two trainers.

While one trainer carries lead responsibility, the co-trainer supports the lead trainer in many of the following ways: He or she assists the lead trainer with responsibilities delineated above and, during the session, the co-trainer observes the process closely to gauge how well the learning goals are being met, adds relevant points to augment discussion, steps in to clarify points, mointors small group tasks and assists where appropriate with the groups, helps respond to participant needs or requests, asks probing questions that the lead trainer might overlook because he/she is managing the whole session, helps the lead trainer become "unstuck", helps to allow a participant to enter the discussions, etc.

Many of these trainer interventions that are pointed out as co-trainer tasks can and are done by the lead trainer also - however, leading a training session where one is concentrating on many different things at once while up in front of the group means that one occasionally misses an

opportune point or a probing question that might yield fertile results or a shy participant who has been trying to enter the discussion for a few minutes and needs a nudge from the trainer. A co-trainer is in a perfect position to make these interventions because he or she is looking at the session from a different vantage point and is freed from the lead trainer responsibility.

When two trainers work well together, the interchange of roles and the timing and pacing of their interventions happens in a way that is fluid and almost unnoticed by participants.

ADVANTAGES OF CO-TRAINING

This two member training effort has many advantages in addition to those implied in the description of co-training spelled out above:

- 1) It increases ratio of trainer to trainee, which is imperative in experiential training since, unlike more traditional training, the format relies on trainers facilitating and working closely with individuals and small groups to manage the learning.
- 2) Allows for sharing the work and reduces burn-out and fatigue.
- 3) Provides variety for participants since it is easier to get bored working with only one trainer.
- 4) Provides a quicker way to improve a training session in that both trainers are analyzing, evaluating and thinking of ways to do it better next time.
- 5) Allows trainers to debrief sessions together and even let off steam caused by design problems or troublesome participants
- 6) In general provides a team approach to training.

DISADVANTAGES

Some of the disadvantage of co-training are as follows:

- 1) It generally takes more time to plan and debrief sessions with two trainers than it does with one
- 2) It can cause confusion if the trainers have significantly different perspectives on the subject at hand, especially if the trainers do not acknowledge their differences.
- 3) The trainers may have different rhythms around pacing and timing of interventions, and this can cause tension on the training team as well as a "jerkiness" during training sessions.
- 4) Co-training can result in too many trainer interventions, where the two trainers find themselves competing for up front time or adding points to each others interventions in too many instances.
- 5) Co-trainers may have similar strengths and weaknesses which means they may both wish to do or avoid doing certain training tasks and they may both miss the same thing during a training session.
- 6) The pressure to use staff meeting time to move ahead with the design and make design alterations in order to reach the session goals may make it difficult for the trainers to give each other feedback and maintain a qualitative working relationship.

Most of the above disadvantages are indicative of a team that is not working well together. Many of these disadvantages can be fixed if the trainers take time to define their working relationship around important training points, and if they allot time to maintain the relationships. Of course, it is true that some trainers simply should not work together. Given that this is not the case, we believe that the attached co-trainer guide can prove useful as a way of providing some structure that a team would find useful in building and maintaining an effective co-training relationship.

(From: A Trainer's Resource Guide, P.C.)

Session 51, Handout 51G: Individualizing instruction

VARIABLE	METHODS FOR INDIVIDUALIZING INSTRUCTION
Content	<ol style="list-style-type: none"> 1. From a prepared set of objectives, allow students as a group or individuals to select those which they want to achieve. 2. Suggest a wide range of topics for individual projects or encourage students to select a project based on their own interest. 3. Offer "reading", "tutorial" or "supervised research" components. 4. Provide remedial and/or advanced segments for different levels of students. 5. Divide class into small interest groups which then pursue different topics or objectives.
Sequence	<ol style="list-style-type: none"> 1. Encourage students as a group to choose the order in which the class will cover a set of objectives. 2. Develop self-instructional packages and encourage students to go through the materials in whatever order they choose.
Pace	<ol style="list-style-type: none"> 1. Encourage students to set their own deadlines for meeting specific objectives; for example, for turning in parts of a research proposal. 2. Encourage students to take tests and exams whenever they are ready (instead of at a scheduled time). 3. Assign units of programmed instruction that students may work through at their own pace.
Methods	<ol style="list-style-type: none"> 1. Set up different "tracks" or ways in which students can learn the same subjects. 2. Encourage students to select those instructional activities they wish to pursue to achieve the objectives.

(From: Vandershmidt, et al, Developing Competent Health Workers: A Handbook for Designing Education and Training Programs)

Session 52: Evaluating of trading programs

Session 52, Handout 52A: How can the health impact be estimated?

Session 52, Handout 52B: Pre and post evaluation

Session 52, Handout 52C: Assessment methods

Session 52, Handout 52D: Ideas for evaluation

Session 52, Trainer Attachment 52A: Sample evaluation forms

Session 52, Trainer Attachment 52B: Daily participation assessment

Session 52, Trainer Attachment 52C: Session assessment sheet

TOTAL TIME: 1 hour, 30 minutes

OVERVIEW

Evaluation is the process of finding out the extent to which training program objectives have been met as well as the quality of the training techniques and trainers. It is a two-way process that measures trainee performance and program/trainer effectiveness the resulting information is then interpreted and feed back into the program in the form of reinforcements and modifications. PCVs who will be involved in organizing and designing workshops need to recognize the role of evaluation in competency-based training and learn the functions that different kinds of evaluation serve in measuring learning. Here participants look first at the evaluation process used in the CCCD training as a concrete example of the basic concepts and issues. Then they read about and discuss specific types of evaluation and examine objectives in terms of their measurability. The real application of the theory learned here comes during the following session on training design.

OBJECTIVES

- To agree upon a working definition of "evaluation" and assess the evaluation process of the CCCD training course in light of that definition. (Step 1)
- To describe the functions and cite examples of at least four kinds of evaluation. (Step 2)
- To explain the relationship between training objectives and evaluation. (Steps 2, 3)
- To examine objectives written in Session 4 for evaluation criteria. (Steps 3, 4)

RESOURCES

- Educational Handbook for Health Personnel. pp. 2.01-2.44.
- Teaching for Better Learning. pp. 73-89
- Helping Health Workers Learn. Chapter 9 Participant-written objectives (from Session 48)

Handouts:

- 52A How Can the Health Impact of Training Be Estimated?
- 52B Pre and Post Evaluation
- 52C Assessment Methods
- 52D Ideas for Evaluation Forms

Trainer Attachment: 52A Sample Evaluation Forms

MATERIALS Newsprint and markers

PROCEDURE

Trainer Note

Session 20 (Evaluation of Health Education Projects) deals with the basic issues in project evaluation. Although not essential, it is helpful to have participants work through that activity before beginning this session on training evaluation. The focus here is specifically on the evaluation process associated with training courses and workshops.

Before the session, have participants read Chapter 9 on Evaluation from Helping Health Workers Learn. In preparation for Step 2, compile sample evaluation forms used by the MOH, Peace Corps, and other organizations for participants to examine. Include the evaluation forms used during the CCCD training course.

Step 1 (20 min)

"Evaluating" This Program's Evaluation Process

On the board, write the definition for evaluation found in the Trainer Note below. Ask participants to decide if they agree with the definition and, if not, to modify it such that it is suitable/workable for the group and trainers. Have the group discuss the evaluation process of this training program in light of each of the four parts of the definition. Write key points that come out in the discussion on newsprint for later reference.

Trainer Note

As defined by J.J. Guilbert in Educational Handbook for Health Personnel, "evaluation" is:

- (1) a continuous process
- (2) based upon criteria
- (3) cooperatively developed
- (4) concerned with measurement of the performance of learners, the effectiveness of teachers, and the quality of the program.

Some points that should come out in the discussion of the evaluation methods in the CCCD program are:

- the number of different kinds of evaluation activities conducted in the program including spot checks or process evaluation at the end of sessions; pre-tests; end-of-module Trainee presentations; one-on-one feedback among participants, between participants and trainers, and among trainers; final program evaluation; written tests; skill performance tests; observation and feedback on participants' attitudes and interaction skills and so forth(1)

- the level of acceptable performance is stated in or built in to the objectives of the training program, i.e., the objectives state the learning outcomes in terms of standards of quantity, quality, and time.(2)

- the appropriateness of actual evaluation instruments, scheduling and frequency of the evaluation, interpretation of evaluation results and the degree of participant input regarding the kinds of evaluation used to measure learning.(3)

- the extent to which the evaluation process in this training has helped participants gauge their learning, identify strengths and weaknesses of the individual/group/program, and determine what

further learning needs to take place.(4)

Step 2 (30 min)

Examining Evaluation Types and Issues

Have participants review Chapter 9, "Examinations and Evaluation as a Learning Process", from Helping Health Workers Learn (HHWL). Also distribute and ask the group to read Handout 52A (How Can the Health Impact of Training be Estimated?), Handout 52B (Pre and Post Evaluation), and any examples of evaluation instruments you have compiled for their benefit. When participants have finished looking over the materials, facilitate a discussion using these questions:

- Does the evaluation process in this training program reflect a program of conventional schooling or people-centered learning? How?
- How can we measure skills such as the ones listed on pp. 9-7 and 9-8 in HHWL? What are some specific ways these skills have been measured in this training?
- of the kinds of evaluation activities we conduct in this training, which ones are continual, periodic, final or follow-up as defined on pg. 9-12 of HHWL? (If the activities are listed on newsprint from Step 1, use colored markers to categorize them in the four types.) How can the trainers in this program conduct follow-up evaluation with you the participants?
- How useful have you found the pre and posttests for this training? How would you use them in future workshop situations?
- How do you see your role (degree of involvement) as a PCV and trainer of health-workers in relation to the types of evaluation listed on the chart in Handout 52A?
- What is the relationship between training evaluation and feedback? Between trainee assessment and program evaluation?
- What is the relationship among learning objectives, evaluation, and training methods?
- What are some common problems or roadblocks in developing an effective evaluation process?

Trainer Note

Before the discussion, thoroughly familiarize yourself with Chapter 9 from HHWL. Help participants understand the concepts and issues discussed in the assigned reading by drawing parallels to both the present training program and further workshops they might conduct with local health workers. Provide examples of evaluation instruments used in this training or used by the Ministry of Health during workshops. Trainer Attachment 52A (Sample Evaluation Forms) contains several examples of forms you may wish to give to the group.

Step 3 (20 min)

Checking Objectives and Sharing Pre-Test Ideas

Ask participants to take out and review the objectives they wrote during Session 48. Explain that they should "assess" each objective for an evaluation criterion, i.e., acceptable level of performance or standard of quantity/quality/time; if they cannot find any they should rewrite the objective to include one. Also ask them to consider how they might pretest a group of participants to find out what they already know and can do with respect to the specific objectives. Have participants share their work with the person sitting next to them.

Step 4 (10 min.)

Linking Evaluation to Workshop Planning

Ask two or three volunteers to share their work on the objective with the large group. Clear up any misconceptions that come out in the examples and ask for any final questions. Distribute Handout 52C (Assessment Methods) and 52D (Ideas for Evaluation) as supplementary readings and explain to the group that they will further apply the concepts of evaluation during the next session on workshop planning.

Trainer Note

During the wrap-up, be sure to make the point that evaluation can show that objectives need to be revised either because they don't satisfy the needs of the learner or those needs change over time.

Leave posted on the wall the list of the evaluation activities used in the CCCD course. Participants can refer to this information during the next session when they are designing workshops which include an evaluation component.

Session 52, Handout 52A: How can the health impact be estimated?

Chart 8.3: How can the health impact be estimated?

Type of Evaluation	Description	Specific Question	Advantage	Disadvantages
A Priori	Evaluation of training plans	Should health workers be trained?	Requires little data collection	Largely a matter of judgment; virtually useless for assessing health impact
Process	Comparison of training methods and content with standards	Were training taught the right skills? Were participatory and practical techniques used appropriately? Were trainers	Much can be learned from non-quantitative observation	Relation of process to health impact has not been demonstrated

		adequately trained?		
Output	Evaluation of trainee knowledge, attitudes and skills at close training	Did trainees learn material covered during the course?	Can be measured relatively objectively	Course may have included inappropriate knowledge and skills
Retention	Posttraining assessment of trainee knowledge and skills (material covered during course only)	Do workers remember what they learned?	Gives evaluator a better idea of potential health impact	Trained knowledge and skills may be inappropriate or inadequate for fields needs; forgotten ones may have been unnecessary anyway
Performance	Assessment of CHW ability to respond to critical health problems (as determined by professionals or by community residents)	Was training appropriate for field needs? Are health workers performing as communities wish them to?	Results useful for planning of future pre-service and in-service training	Performance is difficult to assess objectively, and, in any case, training may be only a minor factor
Knowledge, Attitudes, Practices (KAP)	Analysis of residents health knowledge and behavior	How community's health-related knowledge increased since CHW training? Have health practices improved?	May be the best available substitute for measurement of health impact. Result useful for planning a future pre-service and in-service training	Change in KAP may be due to non-programmatic factors
Health Impact	Measurement of change in morbidity and mortality rates and attribution of change to CHW training	Has CHW training improved the community's health status?	The ultimate question for program evaluation	Health status in costly to measure and attribution of cause and effect requires use of control

(From: Training Community Health Workers. Geneva: World Federation of Public Health Associations, July 1983, pp. 50-51)

Session 52, Handout 52B: Pre and post evaluation

Pre-Evaluation

A Pre-Evaluation is an evaluation conducted before the instruction begins to determine what the trainees already know about the subject matter and other important information about the trainees.

A good Pre-Evaluation should accomplish three things:

- It should determine whether or not the trainee can already do the activity you are going to teach him (the action described in the behavioral objective).
- It should determine whether the trainee has the prerequisite skills needed to learn the new skill (if any prerequisite skills are needed).
- It should find out enough background information about the trainee, in terms of his interests, skills and experience, so that the trainer can plan better learning activities.

The most important purpose of the Pre-Evaluation is simply to determine whether or not the trainee can already do what the instructor plans to teach. All too often, a trainee is forced to sit through a course that he has no need for - only because the instructor did not take the time to determine what the trainee could do.

It is important that the instructor know whether or not the trainees can perform the desired behavior before the course so that when they perform it correctly at the end of the course, he knows that it was his training which made the difference.

It is also important to eliminate from the class or assign different activities to trainees who can already perform the desired skill, because trainees who are bored with reviewing old material may cause bad attitudes to develop in the other trainees in the class.

If most of the trainees in a class are found to be already capable of accomplishing the objective, then the objective should be changed.

Example 1:

An instructor has the objective: "Trainees will be able to use the Two Sons Story' flannelgraph for a group meeting of villagers". His pre-test consists of asking them if they can use the flannelgraph and how many village meetings have been held. They all say they can use the flannelgraph, but seem somewhat hesitant about holding meetings. He then divides them into small groups and has each trainee demonstrate use of the flannelgraph. Since they all perform adequately, but still seem hesitant about group meetings, he decides not to spend any more time practicing use of the flannelgraph in the classroom, but to go straight to the field and spend most of the training time concentrating on holding village meetings.

Example 2:

When teaching Women's Health Visitors to be able to do loop insertions, the instructor finds that one of the trainees is already very experienced in inserting loops and does it quite expertly. Therefore, the instructor decides to use this trainee as an instructor for the other trainees, having

her give demonstrations and guidance to the others.

This type of pre-testing actually saves the instructor work as well as benefiting the trainees, because he does not have to waste his time teaching something the trainees already know.

Post-Evaluation

Post-Evaluation is the means of determining whether or not the training has been successful in achieving the behavioral objectives stated at the beginning of the course.

The proper Post-Evaluation consists of "test items" or "testing procedures" which duplicate as much as possible the action called for in the behavioral objective. In other words, if our objective states what the trainee should be able to go at the end of the course, the trainee should do exactly that for the Post-Evaluation.

A good Post-Evaluation will tell the instructor whether or not his instruction was successful and what were its strong points and weak points. The purpose of this is to improve the training for the next time.

The Post-Evaluation is a critical part of a systematic approach to training. First, you should know where you are going; that is, state your behavioral objectives. At the end, you must judge whether or not you have arrived at the goal you set out to reach. You then use the information gained from the evaluation to decide how to improve the training inputs.

An instructor is conducting a proper Post-Evaluation when he meets the following conditions:

- The Post-Evaluation consists of testing procedures or test items in which the trainee performs the same behavior described in the behavioral objective.
- The Post-Evaluation must come after the learning activities for that particular objective. That is, the trainees must have the opportunity to practice the desired behavior before they are tested on it. The practice itself cannot also be the test.
- The Post-Evaluation should test all of the trainees. Each trainee must demonstrate his degree of achievement of the objective.

The most important point is the first one which relates to the behavioral objectives. Once you have stated clearly what the trainee will be able to do at the end of training, evaluating whether or not you have achieved your goal can be very precise. At the end of the training program, you have the trainee do that same action. If he can perform it correctly, then your training has been successful; if he cannot, then your training needs improvement.

Think of it in these terms:

Performance Discrepancy:	Trainee cannot do XYZ or new TASK.
Behavioral Objective:	Trainee will be able to do m.
Learning Activity:	Trainee practices doing XYZ.

Post-Evaluation	Trainee does XYZ.
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(From: Helping People Learn: A Module for Trainers, East-West, center.)

Session 52, Handout 52C: Assessment methods

In the previous chapter general issues were discussed. It was explained that a good assessment should be economical, valid, reliable and helpful to the student and teacher. This chapter goes on to describe specific methods which will help to improve the way you assess your students. Examples of each method will be given and comments about the value of the method will be made.

Oral exams

In an oral exam one student is interviewed by one or two examiners. Usually the student is asked to tell the examiners what he knows about some topic or what he would do in some situation which might happen in his job.

The oral exam does have some advantages. Because the exam is 'live' the examiner can ask for more detailed information and can probe to find out how much the student knows

However this is not a very satisfactory method of assessment. Students are often made extremely anxious by the examiners - even though the examiners try to be friendly. This is an unfair stress on the students and quite different from the stresses they will face in their career. As a result many students get worse marks than they deserve. Orals also take a lot of time and have frequently been criticised because the marks given are unreliable. Further, the oral rarely tests important skills and does not usually help learning.

Therefore you should not use orals unless you have some specific and powerful reason for choosing this method.

Essays

Essays have been widely used in assessing students in the health professions. But again this method has very serious disadvantages.

In one course students were asked to write an essay on "*Polio Immunisation*". This is a very poor test even though the topic was vaguely relevant to the students. (The students would be responsible for polio immunisation as part of their jobs).

The test is poor because:

- the students can not know what is expected by the examiner. Should they describe the administration of an immunization programme? Should they outline how the immunisation prevents polio? Should they describe the side effects? And so on.
- the marking is likely to be unreliable. The reason is that because the topic is not clearly defined, different teachers will think different points are the most important - and give different marks as a result. Whether a student passes will depend very much on who marks the paper.

- the test is not valid. Students are not going to write essays in their job. They are going to immunise people. Therefore it would be much better to test the really important skills.
- the essays will take a long time to mark - if the teachers do this job thoroughly.
- the students are unlikely to learn very much from the test.

How could the essay be improved?

The first point must be that a quite different assessment method would probably be better - these are described in the following paragraphs. However if an essay must be used you should:

1. Make the title much more specific -- for example

"Describe how you would explain to mothers why their children should be immunised against polio".

or

"Explain how polio vaccine should be transported and given to children. "

These essay titles are fairer because it is more clear to students what they should write. Secondly they are more valid because they ask the students to describe important skills.

2. Prepare a marking scheme and follow it. This scheme will include a list of the major points which should be covered in the essay and may say how many marks should be given for accurate spelling, general clarity of explanation etc. All teachers marking the essay should use this scheme. This improves reliability.

3. After the exam, show the marking scheme to the students and discuss it with them. This will improve learning.

Short answer questions

Short answer questions allow the teacher to ask questions about a larger proportion of the course and to mark more accurately and quickly.

Example of short answer questions

The following questions were part of an examination for health inspector trainees.

1. List 4 advantages to a household of proper rubbish disposal.

- (i)
- (ii)
- (iii)
- (iv)

2. Draw a diagram showing the construction of a simple incinerator suitable for use in a small village.

3. Give two circumstances when tipping and burying rubbish is better than composting.

- (i)
- (ii)

Short answer questions often ask students to make lists or state 2 advantages or draw a diagram. Because they are so much more specific they are quicker to mark and more reliable. They are also very much quicker to answer so in the time allowed for the exam many more topics can be answered than in an essay exam.

There is still a great danger that this kind of question will only ask students to remember facts rather than apply knowledge or perform skills.

Multiple-choice questions

Multiple choice questions are often called MCQs. They are a stage beyond the short answer question, because the students do not write any words. They just choose which of the answers is best.

Example - an MCQ of the one-from-five type

A patient tells you that he has noticed one of his eyes is red and he is worried. You can find no foreign body, but notice that the pupil is bigger in the red eye and the pupil does not respond to light. What is the most likely diagnosis?

- A. Trachoma
- B. Conjunctivitis
- C. Iritis
- D. Corneal ulcer
- E. Glaucoma

In this example the student has to choose between the possible answers and select the one answer which is best - in this case 'E'. In this type of question there is a stem and five choices.

The *stem* is

"A patient tells you.....likely diagnosis?"

The *five choices* are:

- "A. Trachoma*
- B. Conjunctivitis*
- C. Iritis*
- D. Corneal ulcer*
- E. Glaucoma"*

Although it is possible to use 4 or 6 choices, five is the most suitable number. So this type of question is sometimes called the one from five type of multiple choice question (MCQ).

Another type of MCQ is the True/false type.

Example - of a true/false MCQ

In glaucoma

A. There are usually white or grey spots on the cornea	T.	F.
B. The pupils are irregular	T.	F.
C. Only one eye may be red	T.	F.
D. The patient should be referred to a health centre	T.	F.
E. A foreign body is the most likely cause	T.	F.

Again there is a stem - in this example it is very short "In glaucoma".

But this time the stem is followed by several statements. For each statement the student has to decide whether the statement is true or false. In this case 'A' is false, so the student will draw a circle round 'F'. 'B' is also false, but 'C' and 'D' are true while 'E' is false, so the student should draw circles round the F,F,T,T and F respectively. In this case the student has to answer all five parts of the question.

Both these types of question are fairly commonly used although there are reasons for preferring the True/False type.

How good are MCQs?

They can certainly be marked very quickly and accurately. They can also be answered quickly so a lot of questions can be set in an exam - therefore a lot of the course can be covered.

On the other hand there are serious disadvantages. It is quite difficult to write clear questions - so writing the questions takes a lot of time. There is also the very serious problem that MCQs usually only test knowledge. Only rarely do they test decision making ability and they cannot test abilities to communicate or to perform procedures. So MCQs are unlikely to be valid for your course.

Despite these problems MCQs will probably be useful as one of the assessment methods used in your course. They can be used to check factual knowledge, especially during the course. They are also very helpful when used for self assessment or peer-assessment.

If you decide to use MCQs the following practical points may be helpful

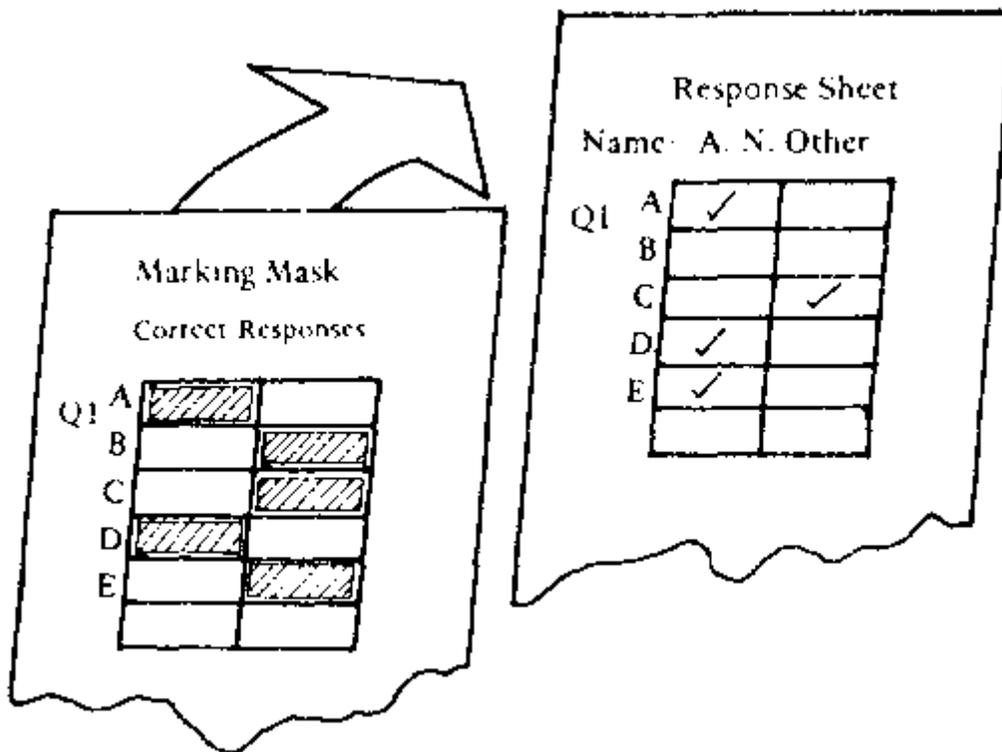
- You should allow roughly 2 minutes for each 5 part true/false question in an exam. So in an hour students can be expected to answer about 30 questions. If you find that students are not finishing the exam cut down the number of questions. It is not a race.
- For true/false questions it is probably best to give 1 mark for each correct choice, zero for no answer and take away one mark for each wrong choice.

In one-from-five questions use the same scheme except that there is no need to take away the mark for wrong answers.

- The "pass" mark for MCQs should be quite high. This is because the MCQ should be testing basic knowledge which all students should know. Therefore a pass mark as high as 80% or 90% can be used successfully. It is better to use easy questions with a high pass mark rather than harder questions with a pass mark of 50 or 60.

- Marking is made much faster if a separate response sheet is used for the student answers. Then a mask can be laid over the response sheet with holes cut out for the correct answers.

In the example 3 correct answers will show through the holes - so give 3 marks. There are 4 ticks altogether, so 1 must be wrong - so take away one mark. This leaves a score of 2 (3-1) for question 1



11.5 Patient management problems

Patient management problems are a development of short answer questions. The main feature of them is that a series of questions are asked about a real case. Although they are called patient management problems they can be used in a wide range of subjects. In fact they can be used wherever students are being trained to make decisions. So they are also very useful for assessing students who are training to be health educators, community health workers, community nurses, health inspectors etc.

Example of a patient management problem

Mrs. A. comes to the health centre and tells you that she is tired all the time. She asks you for a tonic. You find out that she is 30 years old and about 5 months pregnant.

1. List 3 things which you think might cause the tiredness.

2. List 2 other questions which you would ask Mrs. A.
3. As a result of Mrs. A's answers, you suspect Mrs. A. is anaemic. What physical signs would you look for.
4. Your examination confirms your diagnosis of anaemia. What treatment (if any) would you prescribe and what other advice would you give.

This example has the advantages of a short answer question. It is clear to the student and it will be quick and reliable to mark (providing that all teachers involved agree what the possible causes of tiredness are.) It is also more valid as a test because it is based on the kind of work the students were trained to do. (It would be much better if each student met Mrs. A. and actually took a history and examined her). If students are given the marking scheme after the exam they will also be able to learn from this.

How can you write patient management problems?

It is usually easiest if you base the problem on a real case that you have dealt with - a boy who was brought to you with severe abdominal pain - a shopkeeper who failed to keep his premises clean despite several visits from a health inspector - a mother who rejected any advice on nutrition even though her children were malnourished. Of course you must still work as a health worker yourself to follow this advice. But if you teach full time you can still talk to health workers or, even better, spend half a day with a health worker to write down examples of cases.

The next stage is to divide the case into stages. What happened first? What decisions had to be made? What alternatives were there?

Then you should decide what bits of information you will tell the student and which bits you will ask them to tell you.

At this stage you will have a patient management problem, but you will still need to make a marking scheme. List all the answers that you think students might give - both right and wrong. Then decide how many marks you will give for each of the possible answers.

11.6 Project reports

In a number of courses students are asked to work on a project. This may involve doing a survey of a community, working in a health care team for a few weeks etc. Often the student reports on the project, and this can take a lot of time.

Naturally the students will be more motivated in the project if the reports are assessed and the marks count towards the final examination score.

However project reports are extremely difficult to mark fairly because there are usually no clear standards to follow. Some students may do very good work but present a poor report. Others will present a very clear and full report of poor work. Which is best and what standard will you accept ?

Some guidelines may help you.

1. Project work should be assessed by at least two people marking independently. The two marks should then be compared and discussed to reach a final mark.
2. Where possible, explain to students what standards they should aim for. Tell the students what you think a good project would be like. Where possible explain how much data should be collected, how many cases should be seen, what kinds of graphs or tables would be useful. But be careful not to restrict the students too tightly.
3. Let the students see some project work done in previous years which you think is good and also some which you think is bad. Explain your reasons. Of course you cannot do this the first time that you use projects - so maybe the marks for the first projects should not be counted in the overall assessment.

Clearly the use of projects in assessment causes some problems for the teacher. What is their value? Project reports will take a lot of time to mark and the score may have a low reliability. But they can have high validity if the projects are chosen carefully to involve the students in important skills. Above all projects can be very powerful learning experiences and they should be assessed to encourage students to make the maximum effort.

11.7 Record books

Record books have been used quite widely in nurse training and there are good reasons why they can be used in courses for other groups of primary health care staff.

The record book contains a list of skills or tasks which the student should be able to do. These tasks are the objectives or at least some of the objectives - for the course. The students are responsible for learning how to do each of the tasks, and when they are ready they can ask a teacher to check their performance. During the course the students must do all of the tasks to a satisfactory standard. If the teacher thinks that the student's performance is good enough he signs the student's record book. If the performance is not good enough, the faults are explained and the student can try again later.

Example - a page from a student's record book

Task	Date	Signature
17. Prepare a flip chart for use with an audience of 30 people		
18. Give advice to a pregnant woman about ante-natal care.	20/10/79	

The record book does use quite a lot of the teachers' time because each student must be seen and their performance must be judged. This method can be difficult to organise because teachers may not be available when the student is ready to be assessed. Also some teachers may be known as easier markers so there are some problems about reliability. However on balance there are powerful advantages. The main one is that the record books help learning. They do this by making clear to the students what needs to be learnt. They also make sure that when students are not up to standard the teacher is there to give advice. The second main advantage is that the

method should be highly valid - the students will be assessed on how well they can do the tasks and jobs which they are trained to do.

This is a slightly different type of assessment. Students do not get a mark out of 10 for each performance - they are simply judged to be good enough or not. So at the end of the course a student may have done 23 out of the 29 set tasks to a suitable standard. It is then up to the examiners to decide whether this is a "pass". In some courses students must achieve a satisfactory standard on all the tasks. In other courses it may well be impossible to insist on this high standard.

11.8 Checklists

Checklists are not so much a method of assessment as a way of improving other forms of assessments - especially practical or clinical assessments. Practical and clinical examinations can often be criticised because the mark is unreliable. Different examiners use different standards. Checklists reduce this problem and they also make sure that the way in which the student does the task is assessed.

Example - A checklist for the question -

'Prepare a thin blood film using a sample of your own blood'

	not done	done correctly
1. Use middle finger or ring finger of left hand		
2. Cleans the finger using spirit		
3. Dries finger with a different piece of cotton wool		
4. Allows blood to flow freely after pricking with Hagedorn needle		
5. Puts a single drop of blood in the middle of the microscope slide		
6. Allows the blood to spread along the end of the second slide		
7. Pushes spreader quickly along the slide		
8. Draws blood along behind the spreader		
9. Does not blow on slide or shake it		

The examiner can watch the student preparing the blood film and put ticks in the right hand column for each part done correctly. At the end of the test the number of ticks in the '*done correctly*' column are added up and give a score for the student out of 9. The pass mark for this test must be decided by the examiner and he may feel that 7 out of 9 would be a suitable pass

standard for this test. For other tests he might expect 50% or 90%. The pass standard will depend on the specific test.

The advantage of the checklist is that it will make the marking fairer. Different examiners watching a student do a test are more likely to give the same score if they have a checklist. The checklist is also very useful for giving feedback to students or teachers because the evidence is clear and it is simple. The examiner might tell the teacher, "*Most of your students did the blood film test quite well, but I noticed about half of them pushed the drop of blood instead of drawing it behind the spreader slide*". This would clearly help the teacher realise that this point needed more emphasis during the next course.

In the same way detailed information can be given to each student. For example the student might be allowed to see the actual checklist for his own performance.

This example of a checklist is for a physical skill. Similar checklists can be prepared for communication skills and for attitudes but this is often rather more difficult.

Note that a task analysis will be very valuable in preparing a checklist.

11.9 In-course assessment

During the training course, your students will probably spend time working in hospitals, health centres or dispensaries. There they will be practicing the communication skills and the physical skills needed in their job. This time can be used for assessment as well as teaching. Probably the greatest difficulty is that the teacher must rely on assessments made by many different people. So it is difficult to say that all the different people have similar standards. To help in this, checklists can again be used. But in this situation the checklists should be less detailed.

Example - A checklist for assessing students in a health centre

	completely satisfactory	just good enough	not good enough
1. Keeps complete and accurate records			
2. Observes sterile procedures			
3. Establishes good relationships with patients			
and so on.			

Nurses or health workers supervising students can use forms like this to give a clear picture of what the students can do or cannot do. Using this information the teacher:

1. makes decisions on whether students should pass or fail.
2. gives specific advice to students about what they need to learn.
3. improves the course in areas which are poorly learnt.

This less detailed kind of checklist is again prepared from a task analysis.

Checklist can also be used to help assess attitudes.

Example - a checklist for observing attitudes.

1. Very keen willing worker	- - - - 	Does as little work as possible
2. Accepts instructions willingly	- - - - 	Resents or ignores instructions
3. Very great interest in patients	- - - - 	Not interested in patients
4. Always keen to learn	- - - - 	Not interested in learning
5. Always on time	- - - - 	Always late

This checklist might be used by a matron on a ward where student nurses spend part of their training. The matron would use one form for each student nurse. At the end of the training period she would think about the way each of the nurses had worked during their time in the ward.

For example the first nurse might have been quite willing to do what she was asked to do, but never seemed very keen or offered to do extra work. The matron would note this down by putting a cross at about the middle of the line.....

1. Very keen willing worker	- - x - 	Does as little work as possible
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In this way the matron can give a fair and quick summary of the attitudes of the student nurse to the teacher responsible for the course. This checklist can be used to give advice to the student nurse and can form part of the record which is used to decide whether the student nurse passes the course.

11.10 Conclusion

No assessment method is perfect. Each has some advantages and some disadvantages. The teacher should therefore use a variety of methods whenever this is possible.

Ideally the teacher should first decide what skills need to be assessed. These skills are, of course, the objectives of the course.

Then the best method should be chosen for assessing these skills. The method should be chosen on the basis of:

1. regulations for the course
2. economy of time
3. reliability

4. validity
5. value as a learning tool

(From: Teaching for Better Learning; WHO, Geneva 1980)

Session 52, Handout 52D: Ideas for evaluation

There are many ways to evaluate a training program. It is up to you and the program participants to decide on the most useful methods. You will probably want to evaluate the course content and format, staff participation, and the group members/progress. Whatever methods you select, the most important thing to remember is that the purpose of an evaluation is to find out how effective the training program is, and to look for ways to improve it. The evaluation process should be two-way between staff and participants; it should include a variety of methods, and be used periodically so that suggestions for improvement can be incorporated.

Before the training program begins, please read the section on Evaluation (Chapter 9) in Helping Health Workers Learn. In addition to the suggestions presented there, some other ideas are:

DAILY EVALUATION ACTIVITIES:

1. At the end of a session, spend a few minutes to review the objectives that were to be accomplished. Ask for comments and suggestions for improvement.
2. At the end of the day's activities, staff and participants anonymously write several positive comments about the day, several negative ones, and some suggestions for improvement. The papers are collected and put in a bag. Each person draws a paper from the bag, and in turn, reads the positive comments. The process is repeated with the negative statements, and with the suggestions for improvement. Someone may keep a tally of the kinds of comments that were given. At the end of the evaluation, lead a discussion to elicit opinions on the program so far, and deal with any areas of concern that should be addressed.
3. In small groups, staff and participants list what they understood was to be accomplished during the day. Then, each group makes two other lists of what they believe went well and what could have been done better. The groups meet and share the lists, then discuss how the evaluation results will be applied to the next day's activities.

WEEKLY AND FINAL EVALUATION ACTIVITIES:

1. Participants fill out a "report card" on the activities over a period of time, giving high marks, low marks and suggestions for improvement for each session or other activity. Post the "report cards" and discuss them.
2. Write each of the following questions on a separate envelope and post them:
 - What did we get done that you hoped we would accomplish?
 - What did you learn that you didn't expect to learn?
 - What were some outstanding things about the week (or training?)
 - What were some not-very-good things about the week (or training), and how could they be improved?

Provide slips of paper for people to use for comments to be put in each envelope. Later, review the comments with the group.

3 Distribute a questionnaire to evaluate the week's sessions. Write the title of the session, and next to it, a scale from "not useful" to "very useful" plus room for comments. Ask the participants to rate each session, then review the evaluations with the group.

4. The participants evaluate your performance as a trainer, using the checklist on page 9-17 of Helping Health Workers Learn and using the following points for consideration:

- Ability to effectively communicate information
- Apparent knowledge of subject matter
- Methodology used

5. The participants develop and answer a number of questions to evaluate the training program, then discuss their comments.

6. Divide a large sheet of newsprint into quadrants with a marker. In the upper left, write "Your Expectations of the Training Program"; in the upper right, "A Problem that Faced the Group During Training"; in the lower left, "How We Resolved the Problem"; and in the lower right, "A Hope for the Future."

Distribute sheets of paper and ask the group to make drawings to represent the four areas. When the activity is done, everyone posts their drawing and explains it to the rest of the group.

This exercise may be modified by changing the headings on the newsprint sheet as appropriate to your program.

7. Each member of the group writes a brief message to each of the other people on a slip of paper, mentioning a positive quality that he or she admires about the other person. As an option, on the other side of the paper, they may write a suggestion as to how the person might improve their teaching skills. An envelope with each person's name is posted, and the slips of paper put in the proper envelopes. The "telegrams" in their envelopes are distributed for people to read when and where they wish.

(From: Health Education Model, P.C.)

Session 52, Trainer Attachment 52A: Sample evaluation forms

Evaluation of activity

Evaluation of Activity	
Date	_____
Name of health worker	_____
Community group	_____
Number of people In meeting	_____
Activity _____	Material used: _____
Time of activity	_____

1. What did the facilitator (health worker) do?

(Check appropriate items)

Listened and asked questions _____

Guided the meeting _____

Stimulated and encouraged discussion _____

Had the community members use the materials _____

Listened and participated In a discussion of problems _____

Others _____

2. What was the participation of group members?

(Check appropriate items)

Took active role in the activity _____

Answered questions _____

Made observations _____

Shared Ideas and experiences _____

Discussed a problem or felt need _____

Showed enthusiasm _____

Others: _____

3. Number who participated:

A few of the group _____ About half of the group _____ Most of the group _____

4. If the community discussed a problem or need, what steps or actions did they decide to take? _____

Session 52, Trainer Attachment 52B: Daily participation assessment

Check off the things that you did during today's session.

I listened

I read

I copied down notes

I wrote down my own ideas

I mentally evaluated ideas presented by others

I offered ideas of my own verbally

I took part in small group discussion

I took part in whole group discussion

I engaged in problem solving individually in a team

I related the theoretical concepts to my own field experience

I role-played

I participated in practical activity

I created or helped create a (communication) message

I got bored

I fell asleep

Any other? Specify: _____

Session 52, Trainer Attachment 52C: Session assessment sheet

Session Title:

Please fill in the ratings and provide short answers to the questions below. Give specific examples whenever possible.

1. The objectives for this session seemed:

+	-----	+	-----	+	-----	+	-----	+
		-		-				
1		2		3		4		5
Mostly Irrelevant to Learners		Somewhat Relevant			Very Relevant to Learners			

Because _____

2. This session accomplished the objectives:

+	-----	+	-----	+	-----	+	-----	+
		-		-		-		
1		2		3		4		5
Not at all		Somewhat			Entirely			

Because _____

3. For the learners, the activities used during the session were:

+	-----	+	-----	+	-----	+	-----	+
		-		-				
1		2		3		4		5
Very Ineffective		Somewhat Effective			Entirely Effective			

Because _____

4. The opening for the session was:

+	-----	+	-----	+	-----	+	-----	+
		-		-				
1		2		3		4		5
Very Ineffective		Somewhat Effective			Entirely Effective			

5. The conducting part of the session was:

+	-----	+	-----	+	-----	+	-----	+
		-		-				
1		2		3		4		5
Very Ineffective		Somewhat Effective			Entirely Effective			

Because_____

6. The conducting part of the session included the following part:

Experiencing:		Processing:		Generalizing:		Applying:	
Yes___	No___	Yes___	No___	Yes___	No___	Yes___	No___

Comments_____

7. The visual aids handouts were:

+	-----	+	-----	+	-----	+	-----	+
		-		-		-		-
1		2		3		4		5
Nearly Useless		Somewhat Useful			Very Useful			

Because_____

8. The time allowed for activities in this session was:

+	-----	+	-----	+	-----	+	-----	+
		-		-				
1		2		3		4		5

Too long	Appropriate	Too Short
----------	-------------	-----------

Because _____

9. The evaluation activities used during and after the session were:

+	-----	+	-----	+	-----	+	-----	+	-----
		-		-					
1		2		3		4		5	
Very Ineffective		Somewhat Effective			Entirely Effective				

Because _____

10. The best thing about this session was: _____

11. This session could be improved in the future by: _____

(1-5 from: Bridging the Gap, Save the Children p.90.

6-11 from: Workshop Ideas for Family Planning Education, World Education.)

Session 53: Training design: developing a two day workshop

Session 53, Handout 53A: Making the schedule

Session 53, Handout 53B: Setting the learning climate

Session 53, Handout 53C: Icebreakers and warm-ups

Session 53, Handout 53D: Organization and logistics

Session 53, Handout 53E: Workshop design sheet and schedule

Session 53, Handout 53F: Health-worker training course

TOTAL TIME: 4 hours

OVERVIEW

Up to this point, participants have performed a needs assessment and task analysis, written behavioral objectives, and explored a variety of training techniques and materials. Now the task is to design a sequence of integrated learning events that, together with logistical support systems, comprise a workshop. During this session, trainees first examine a number of training design issues (for example, climate-setting and sequencing) through participated discussions. Later in teams they use their task analysis and behavioral objectives to design a two-day workshop for health workers in PHC programs.

OBJECTIVES

- To examine design issues in sequencing, scheduling, climate-setting, and logistics as they apply to planning training programs or workshops. (Step 2)

- To examine cultural considerations in workshop design. (Steps 2-6)
- To design a two-day workshop based on the task analysis and behavioral objectives from Sessions TOT 3 and 4. (Steps 4, 5, 6)

RESOURCES

Helping Health Workers Learn, Chapters 3 and 4 Teaching for Better Learning (WHO) Bridging the Gap (Save the Children)

Handouts:

- 53A Making the Schedule
- 53B Setting the Learning Climate
- 53C Icebreakers and Warm-Ups
- 53D Organization and Logistics
- 53E Workshop Design Sheet and Schedule
- 53F Health Worker Training Course Planning

MATERIALS

Newsprint and colored markers

PROCEDURE

Trainer Note

This session requires considerable preparation on the part of the trainer and participants. At least one or two days beforehand distribute Handouts 53A through 53E to all participants and ask them to read the material. Also ask them to read Helping Health Workers Learn, pp. 3-5 to 3-8 (Important Considerations for Overall Course Planning). Explain that this discussion provides an overview for the content of Session 53. The four handouts give information on four topics of concern for anyone who plans and implements training workshops. Ask participants to note any questions or concerns they have regarding the information and explain that they will have an opportunity to address these during the session. Ask four participants to volunteer to serve as discussion leaders for the topics covered in the above-mentioned handouts. They include:

- 53A Making the Schedule
- 53B Setting the Learning Climate
- 53C Icebreakers and Warm-Ups
- 53D Organization and Logistics

Assign to each of the volunteer leaders one of the topics and ask them to study the handout information thoroughly and be prepared to guide a short discussion for clarifying concerns and checking for understanding among the group. Tell them to specifically consider any cross-cultural implications related to the topics and raise these as issues with the group. Offer yourself as a resource to these discussion leaders and supply additional relevant materials if they so request. Also, ask the four volunteer leaders to review what they've learned about leading good discussions (during Sessions 49 and 51).

Step 1 (20 min)

Overview of Training Design Sequence

Begin the session by reviewing the steps in training design that participants have worked through already (i.e., needs assessment, task analysis, objectives, appropriate training methods, and evaluation). Explain that during the next four hours the group will apply what they've learned by planning a two-day workshop. Referring to the assigned reading in *Helping Health Workers Learn* which the group read beforehand, briefly explain the objectives and sequence of activities for the session.

Trainer Note

If participants have not had an opportunity to finish reading the assigned handouts, give them a few minutes to do so here before proceeding.

Step 2 (30 min)

Discussing the Training Design Topics

Ask participants to take out and have for reference Handouts 53A through 53D and any questions or notes they wrote down concerning the handout material. Starting with Handout 53A (Making the Schedule), ask the respective volunteer leader to guide the group in a short discussion of that topic. Continue with this process until all four handout topics have been examined and any questions have been answered. Be sure that during discussion the group relates the topic information to the "real world", that is, to the kinds of training workshops they will conduct in the future.

Trainer Note

As the volunteer leaders facilitate the discussion in this step, assist them if necessary in keeping the group focused on one topic at a time. Also, be sure any pertinent cross-cultural issues are raised and treated by the group, for example - Which of the icebreakers mentioned in the handout material might be considered offensive or threatening to the local culture? If necessary, pose questions and provide examples to the group that will help them understand the ways in which culture affects training situations.

Step 3 (15 min)

Assigning The Workshop Design Task

Distribute Handout 53E (Workshop Design Sheet and Schedule) and ask the group to look it over. Explain to participants that they will break down into the same teams that worked together during the activities on task analysis and objectives and use some of the objectives they've identified as a basis to design a two day in-service workshop for health workers. Specifically their task will be to:

1. decide which objectives will be met during the workshop (based as much as possible on the information regarding problems and priorities they've collected thus far in training).
2. develop a training design that meets these objectives in appropriate experiential, participatory ways using the worksheet as a framework.
3. make a two-day schedule showing sequence, time blocks, and so forth.

4. be prepared to discuss how they would include participants and co-trainers in the planning, how they would set a favorable climate for learning, how they have included individualized learning in their designs and how they would do follow-up on the workshop.

Be sure the group understands all the components of the Workshop Design Sheet. Illustrate the planning sequence for one objective using the example in the following Trainer Note.

Trainer Note					
Example of a Workshop Design for one Objective:					
Workshop design sheet and schedule					
OBJECTIVE	ACTIVITIES	TIME	MATERIALS	EVALUATION	ACTIVITY COORDINATOR
I. Recognize 6 signs and 3 degrees of dehydration	A. Show slides of dehydration. Discuss and list signs and symptoms as they appear.	30 min.	Slides, projector, markers, paper		
	B. Examine WHO Assessment Chart in relation to the date from slides.	30 min.	WHO Chart (1) large for wall, small handout for each participant	Show slides, photos, or if possible children at clinic and have participants assess.	Ilya
	C. Practice identifying signs and assessing degrees of dehydration using case studies.	30 min.	Case studies from "Treatment of Acute Diarrhea" (WHO)		
	D. Field visit to local clinic if possible.	2 hrs.			
II. Describe:					
Be sure participants do not give too much detail under the category "Activities". The idea is to					

briefly outline the procedure.

Provide newsprint and markers to the teams so they can outline their designs and schedules for presentation later to the large group. Be sure the teams understand that they should address all the areas on the worksheet and be prepared to discuss them with their peers.

Step 4 (1 hr. 45 min.)

Designing the Workshops

Have the teams complete the task of designing their workshops. Visit the groups to answer questions and make sure that everyone is on track.

20 Minute Break

Step 5 (50 min)

Presenting Workshop Designs

Have each team present their workshop design. After each one, ask the rest of the group to comment and provide any constructive suggestions for how the design might be improved. After the teams have all shared their designs, ask participants to briefly reflect on the experience of planning the workshop as a team member. Have them share some of the satisfying and frustrating aspects of team planning and discuss how they might deal better with the frustrations in future workshop planning.

Trainer Note

If at all possible, invite the participation of MOH personnel who are involved in providing in-service training to clinic staffs. Ask them to observe the presentations and provide feedback on the overall design, sequencing, timing, and technical and cultural appropriateness of the workshops. If these resource people are unavailable, at least have other trainers from the program (language trainers, etc.) present to provide additional perspective.

Step 6 (10 min)

Summarizing Important Learning's

To close ask every other participant to state one key point addressed in the session. Have their neighbor (or every other participant) state how learning is relevant to their future role as trainers of health workers. Continue to take turns until most of the main points have been mentioned.

Session 53, Handout 53A: Making the schedule

Consider how much time to allow for each area of study

This can be done using the same worksheet. As an example of how to do it, see the next page.

- First, figure out the total number of hours of study time for the whole course. Write the sum at the top of the sheet, beside "total hours of course time available." (A two-month intensive course at 8 hours a day, 6 days a week, would have 384 hours available.)

- Then, in the column for ESTIMATED HOURS NEEDED, write the number of hours you think will be needed to cover each subject. Keep in mind the total hours of course time.
- When you have filled in the estimated hours for each subject, add them up and compare your total with the "total hours available." (See the upper right corner of the chart.) Subtract to find the difference. This lets you know how many hours you need to add or subtract from different subjects. But before making these adjustments.
- Fill in the third column, RELATIVE PRIORITY, using information from your previous studies (steps 2 and 3). This will help you to make study time adjustments according to priority of needs.
- Now adjust the hours for different subjects until the total equals the number of hours available. (Be sure to allow time for review and missed classes.)

Note: Not all of the subjects for study will require separate class time. Some can be included within other subjects. For example, we suggest that 'anatomy' not be taught as a separate subject, but that it be included as needed when studying specific health problems. Subjects that do not require separate hours can be written in parentheses (like this).

Some subjects with scheduled hours can also, in part, be covered in classes on related subjects. For example, preventive measures like hygiene and sanitation can be reviewed during classes covering specific illnesses. Physical exam, history taking, and the correct use of medicines can be reinforced during the daily clinical practice.

Making the schedule

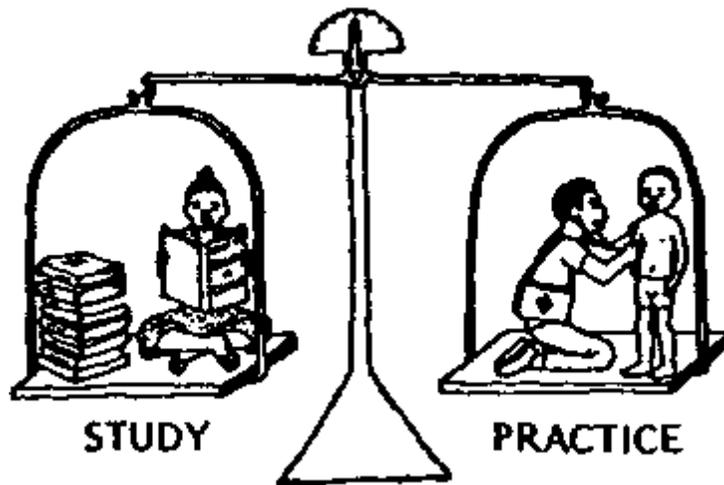


Balancing the course content

A training course needs to be balanced in both content and learning methods.

- **Try for a balance between preventing, curative, and community or social aspects of health care.** Add up the hours in each of these 3 areas. Consider if the balance is appropriate in terms of the people's needs and concerns. Adjust the hours if necessary.

Balancing the course content



• Balance discussion-type learning (classwork) with learning by doing (practice), physical work, and play.

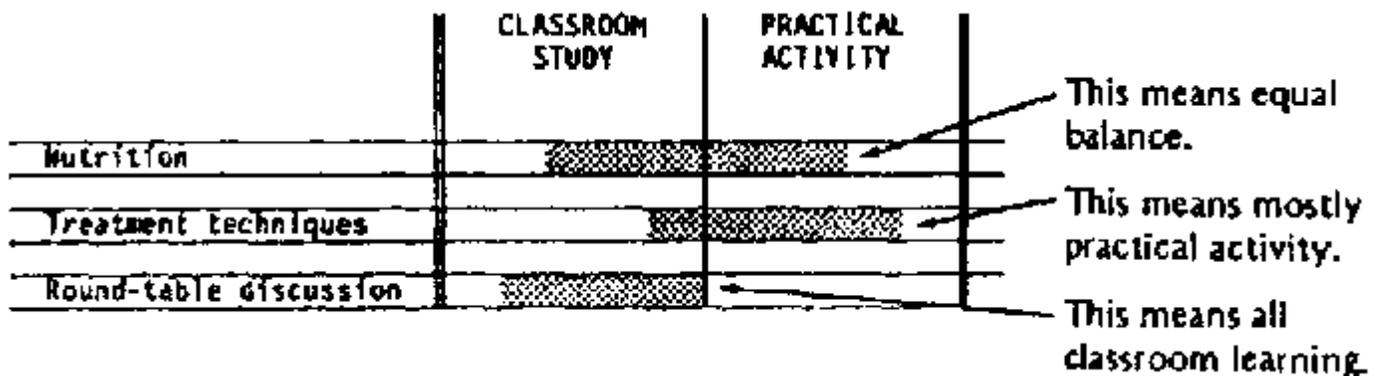
More and more programs are realizing the importance of learning by doing. Increasing emphasis is being placed on activities in the community, in the clinic, in schools, and in the fields as a part of health worker training. Even classwork - some of which remains necessary - can involve a great deal of active practice in using skills and solving problems.

Many programs also are recognizing the importance of physical work and play as a part of health worker training. Physical work serves many purposes - especially if it is health related (gardening, digging latrines, building equipment). It provides a change of pace. It keeps health workers close to the land and the working people. It helps them learn new agricultural or building skills. And in some projects, the health workers' daily farm work produces food that helps make the training program self-sufficient.

Learning through games and play is especially important for occasions when health workers work with children.

To plan a balance between classroom study and practical activity, you can use the same worksheet as before. Go down the list of subjects, marking the balance you think is appropriate for each one. You can do it this way:

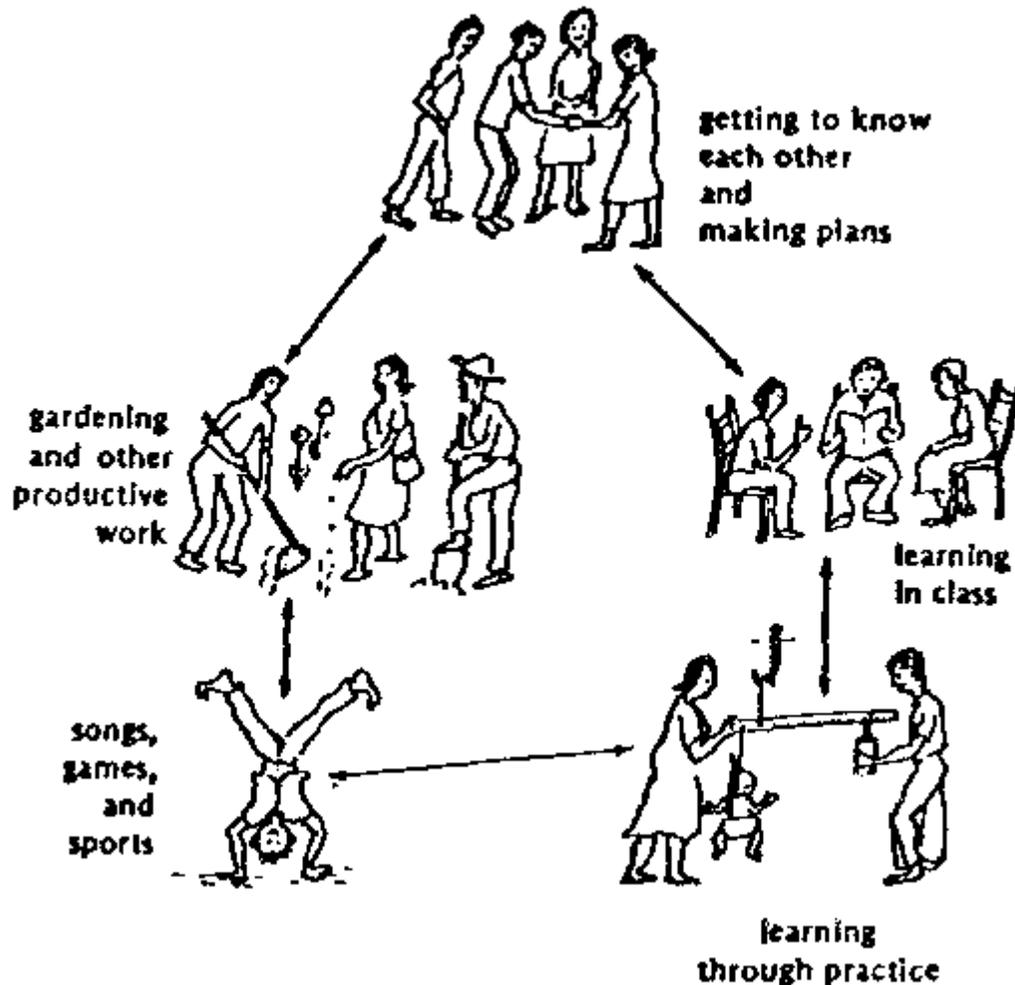
Figure



After marking each subject, look at the overall balance. If too much time is given to classwork, try to think of ways more learning can take place through practice and experience.

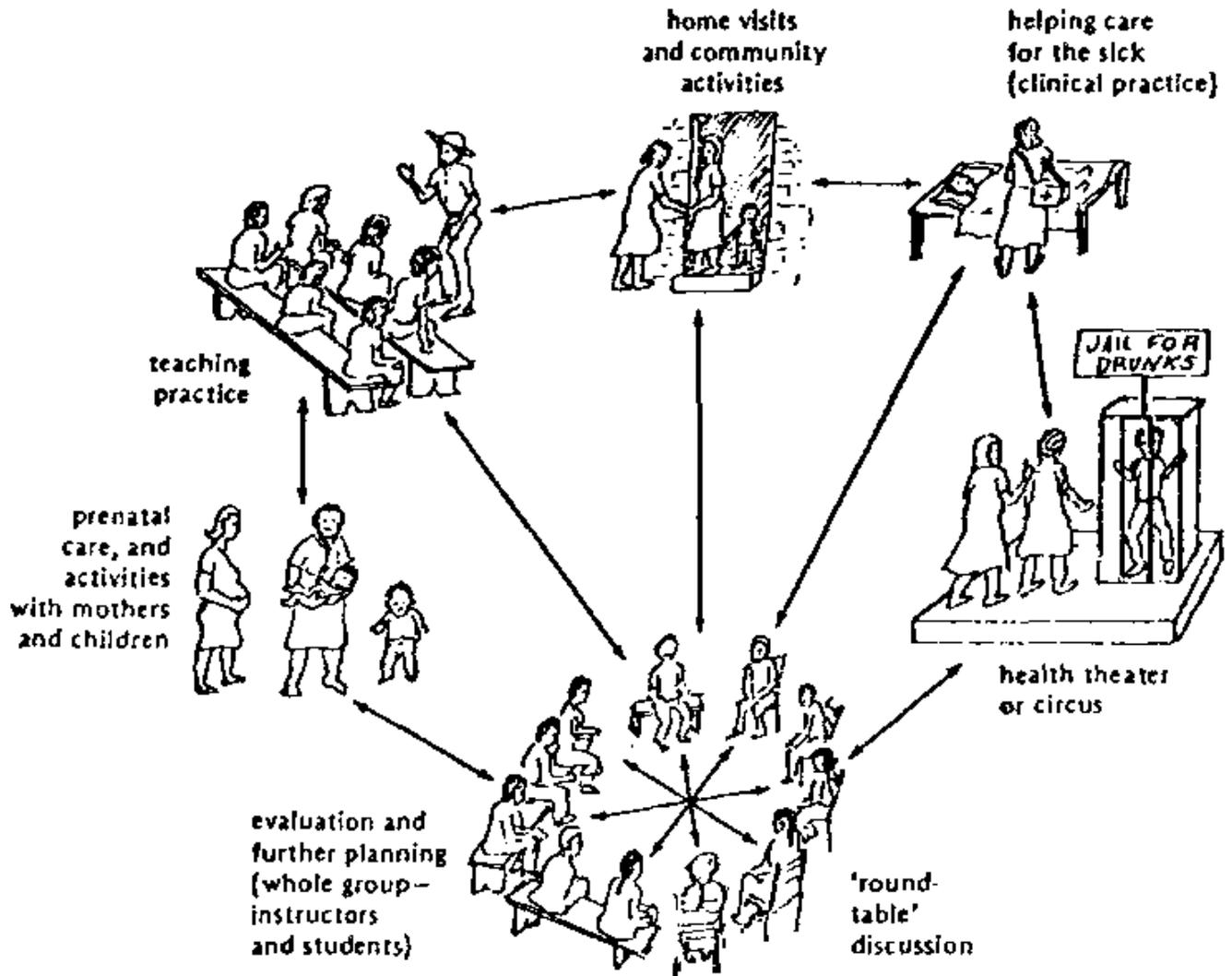
PLANNING A BALANCE OF LEARNING ACTIVITIES

From the first day of the course, it is a good idea to have a balance of different learning activities.



At first, getting to know each other will be very important. So are discussions about health, well-being, and the goals of the program. But the learning of specific skills should also begin at once. Productive work like gardening is important, too. And don't forget games, songs, and sports.

After the course is underway, other important activities can be introduced



Preparing a timetable and making the weekly schedules

Once the overall content for the course is decided, you can plan the classes and other activities on a week-by-week basis. It helps if you mimeograph blank planning sheets similar to the one on page 3-29, but adapted to your needs. The larger the planning sheet, the more details can be written in later. You can make a large one by joining 2 sheets together. Each week the plan can be posted for students to see. Following the blank weekly schedule is an example of one that was filled out and used during a training course in Project Piactla, Mexico.

In preparing a weekly timetable, think about how to best use the hours of the day. Plan your schedule according to the local rhythm of life: the hours when people usually wake up, work, eat meals, rest, and so on. Try to include a variety of activities during each day, to avoid doing the same kind of thing for too long. You may also want to allow a few minutes between classes for relaxing or quick games. When planning times, be sure to get the suggestions and agreement of the students and the families with whom they are staying.

Now consider **which** subjects should be taught **when**. Here are some ideas based

Be sure afternoon classes have plenty of action

NOT APPROPRIATE



APPROPRIATE



Which time of day is best for what?

- Early morning hours, before the day is hot, are good for gardening and physical work.
- The morning is also a good time for classes on serious subjects that require thoughtful study. Everyone is fresh and eager to learn at this hour.
- The afternoon, when students are tired, is a good time for active discussions, role playing, and projects like making teaching materials. Evenings are best for slide and filmstrip presentations, and for meetings with community persons who may be busy all day.

Every day? Or once or twice a week?

- Subjects such as curative-and-preventive medicine and clinical practice, which cover a great deal of material and require a lot of time, are best included every day.
- Skills such as using a reference book (*Where There Is No Doctor*) or using medicines correctly are best taught once or twice a week - in such a way that they reinforce other subjects the students are learning.
- Review sessions should follow consultations or exams as soon as possible.
- Community visits should be scheduled for times when people are likely to be at home-a couple of evenings each week or on a weekend morning.

At the beginning of the course? Or near the end?

- Knowledge and skills needed to examine, care for, and give advice to people who are sick should be covered at the beginning of the course. See page 8-5.
- Teaching in the community and putting on village theater shows are good activities for later in the course, when students have more knowledge and self-confidence. But be sure to plan and practice for these well in advance.

Before the course begins (or shortly after, so as to include student suggestions), **make rough weekly plans for the whole course**. This helps ensure that you allow time for everything you intend to include. It is easy to run out of time before all the important material has been covered!

When making an early plan of the whole course, you do not need to fill in many details. Later, during the course, the instructors can meet with the student planning committee each week to prepare a more detailed plan for the following week. Be sure you schedule a regular time for this planning, too.

An important suggestion: MAKE YOUR TIMETABLE FLEXIBLE

It often happens that some classes or subjects take longer than planned. Others are poorly or even wrongly taught, or prove especially difficult for students to understand. Such classes may need to be repeated. For this reason, it is wise to leave plenty of extra time for review: about 1 or 2 hours of 'open' time each week, plus several unplanned days at the end of the course. This open time also allows you to adjust the schedule when classes are missed or postponed. Especially if training takes place in a real-life setting (like a village), medical emergencies and other unplanned learning opportunities are bound to come up.

For example, during a training course in Ajoya, Mexico, a class was interrupted when news arrived that a man had broken his leg on a mountain trail. The students and instructor carried the man to the health center on a stretcher, set the broken bone, and put a cast on his leg (see photo).

The interrupted class was given later. This was easy to manage because extra time had been allowed in the schedule.

Do not be afraid to change your plans.

Preparing detailed plans for the first few days of the course

Weekly planning sheet - health worker's training course

WEEKLY PLANNING - HEALTH WORKER'S TRAINING COURSE

WEEK NUMBER 2

DATES January 25 to January 31, 1979

AJOYA, MEXICO

TI ME	MONDAY	TUESDAY	WEDNESDA Y	THURSDAY	FRIDAY	SATURD AY
----------	--------	---------	---------------	----------	--------	--------------

7: 00	<u>WORK IN THE VEGETABLE GARDEN</u>					
8: 00	BREAKFAST	BREAKFAST	BREAKFAST	BREAKFAST	BREAKFAST	BREAKFAST
	<u>CURATIVE MEDICINE</u>	<u>CURATIVE MEDICINE</u>	<u>CURATIVE MEDICINE</u>	<u>CURATIVE MEDICINE</u>	WEEKLY TEST	PREPARED FOR COMMUNITY VISITS
	DIARRHEA AND DEHYDRATION	CAUSED AND TREATMENT OF DEHYDRATION	STOMACH ULCERS			COMMUNITY VISIT (REMIND MOTHERS ABOUT BABY WEIGHING ON MONDAY)
9: 00	<u>USE OF MEDICINE</u> RISK AND PRECAUTIONS WITH MEDICINES	<u>USE OF THE BOOK</u> (WTND) KIND OF DIARRHEA	<u>USE OF MEDICINES</u> HOW TO MEASURE AND GIVE MEDICINES	<u>USE THE BOOK</u> (WTND)		COMMUNITY VISIT (REMIND MOTHERS ABOUT BABY WEIGHING ON MONDAY)
11: 00	<u>PRACTICE IN CLINICAL HEALTH CARE (MEDICAL AND DENTAL)</u>					COMMUNITY VISIT (REMIND MOTHERS ABOUT BABY WEIGHING ON MONDAY)

)
12:00	<u>REVIEW CONSULTATIONS</u>	<u>REVIEW CONSULTATIONS</u>	<u>REVIEW CONSULTATIONS</u>	<u>REVIEW CONSULTATIONS</u>	<u>REVIEW CONSULTATIONS</u>	COMMUNITY VISIT (REMIND MOTHERS ABOUT BABY WEIGHING ON MONDAY)
	<u>CURATIVE MEDICINE SCIENTIFIC METHOD</u>	<u>CURATIVE MEDICINE MEDICAL HISTORY</u>	<u>CURATIVE MEDICINE INTRODUCTION TO PHYSICAL EXAM</u>	<u>CURATIVE MEDICINE VITAL SIGNS</u>	<u>CURATIVE MEDICINE VITAL SIGNS</u>	COMMUNITY VISIT (REMIND MOTHERS ABOUT BABY WEIGHING ON MONDAY)
1:00						
2:00	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH MEET WITH SCHOOL CHILDREN TO PLAN PUPPET SHOW	LUNCH
3:00	<u>PREVENTIVE MEDICINE HOW TO PREVENT DIFFERENT KINDS OF DISEASES</u>	<u>PREVENTIVE MEDICINE SPREAD OF INFECTIOUS DISEASES</u>	<u>PREVENTIVE MEDICINE IMPORTANCE OF SANITATION AND NUTRITION</u>	<u>PREVENTIVE MEDICINE</u>	REVIEW OF TEST AND WEEK'S CLASSES	COUNTRIES MAKING POSTERS AND PUPPETS WITH SCHOOL CHILDREN

						N
4:00	ROUND-TABLE DISCUSSION	<u>HEALTH EDUCATION</u> LEARNING TO DRAW MAKING POSTERS	<u>HEALTH EDUCATION</u> MAKING POSTERS	<u>HEALTH EDUCATION</u> PLAN MEETING WITH SCHOOL CHILDREN	OPEN DISCUSSION	COUNTRIES MAKING POSTERS AND PUPPETS WITH SCHOOL CHILDREN
5:00						
6:00	DINNER	DINNER	DINNER	DINNER	DINNER	DINNER
7:00	CLINIC WEEKLY BUSINESS MEETING		SLIDE SHOW AND DISCUSSION ABOUT CHILD-TO-CHILD PROGRAM	STUDENTS' SELF-EVALUATION MEETING	MEETING TO PLAN NEXT WEEK'S SCHEDULE	

(From: Werner, Helping Health Workers Learn, pp. 3-22 to 3-28)

Session 53, Handout 53B: Setting the learning climate

The first few days are not only the most difficult, they are also among the most important. This is the time when the members of the learning group meet and begin to know each other.

Getting to know each other in a friendly, open way is perhaps the most important thing that can happen in these first days. There are a number of things you can do to help this happen. (See 'Breaking the Ice', page 4-6.)

During the first days there is lots of talking. People are getting acquainted. Many things need to be explained and discussed. On page 4-11, we look at some of the important things to discuss.

But there is also a danger of talking and discussing things too much! **Students come to learn specific skills.** They may not yet know that the art of listening and of sharing ideas openly in a group is one of the most valuable skills a health worker can master. They want to get on with more exciting things - like using a stethoscope and giving injections.

There are, of course, good reasons not to start by teaching how to inject or use a stethoscope. (See the next page.)

Nevertheless, new health workers-in-training are eager to start learning useful skills. Too much talk will discourage them. So from the first day of the course, include activities that help students master practical skills - skills they can put to use as soon as the need arises.

Begin teaching practical skills right away.

Taking student interest into account

In the beginning, health workers - like most people - are more interested in treatment than in prevention. During the course, the importance of prevention and of health education should become clear. But at first - and often to the last, if secretly - the biggest interest of most health workers is in curative medicine. After all, the health worker wants to be appreciated. He therefore wants to help meet people's felt needs. And this we must respect

Only when the whole community becomes aware of the need for preventive action is the health worker likely to make prevention his first concern.

The challenge for both instructors and health workers is not simply to respond to people's felt needs. It is to help people look at and understand their needs more clearly. But the process cannot be forced or hurried. People need to discover the reasons and decide to take steps themselves.

The dream and the reality (which is which?)

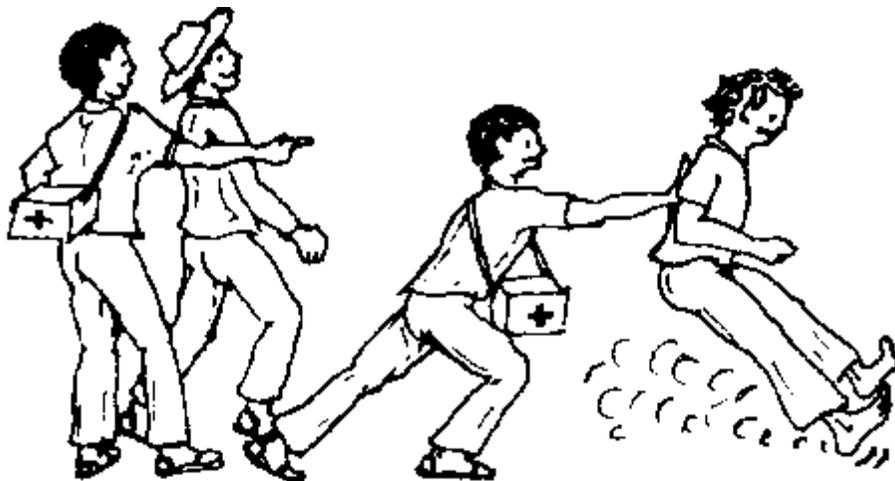


The health worker can point the way, but must not push-not if he or she wants lasting results.

The same thing is true for instructors.

Whenever possible, start where the students' interests lie. But be selective. Try to direct their interests toward meeting important community needs.

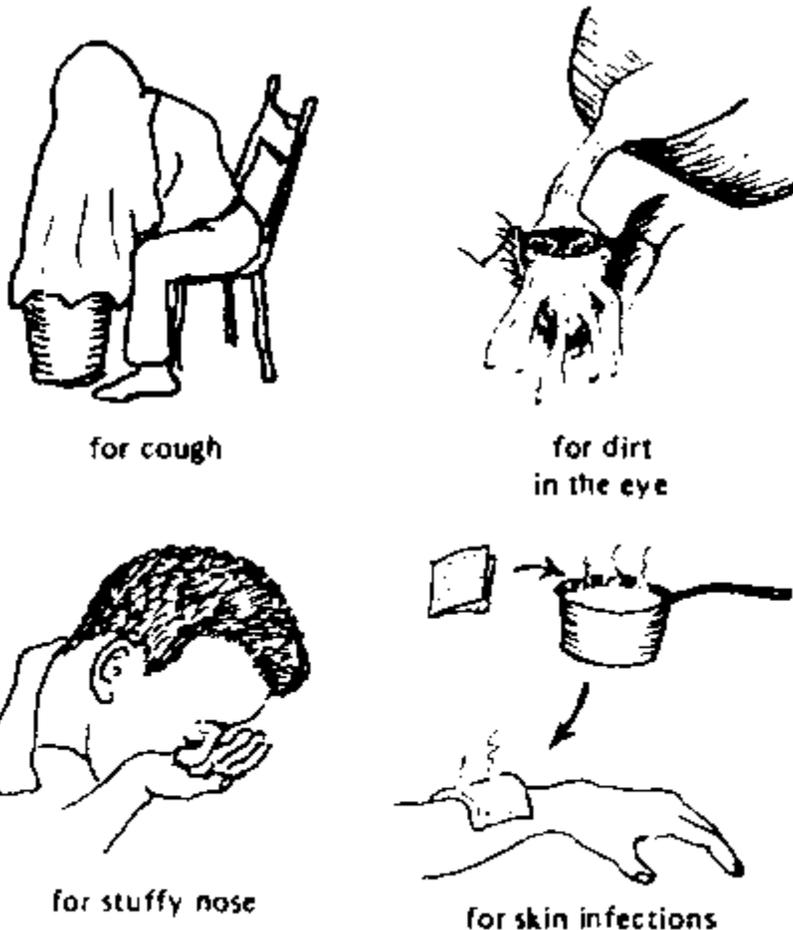
Remember point but don't push.



If the students' first interest is curative medicine, start with that. But take care not to start by teaching frequently misused skills, such as how to give injections or use a stethoscope. Too often, doctors and health workers use the needle and the stethoscope as signs of prestige and power. The people see these instruments as magic. To reduce this problem, some programs do not teach how to inject until late in the course. This is probably wise. Consider beginning the study of curative medicine by looking at **useful home remedies** (see WTND, Chapter 1). Or start with ways of **healing without medicines** (WTND, Chapter 5). This is more appropriate because:

- It places emphasis on local traditions and resources.
- It encourages self-reliance.
- It lets students begin by speaking from their own experience.
- It helps take some of the mystery out of both traditional and modern remedies.
- It can help awaken students to the problems of overuse and over-dependence on modern medicines.

Healing with water



As you can see, this approach is partly preventive, even though it deals mainly with treatment.

IMPORTANT THINGS TO START DISCUSSING IN THE FIRST FEW DAYS

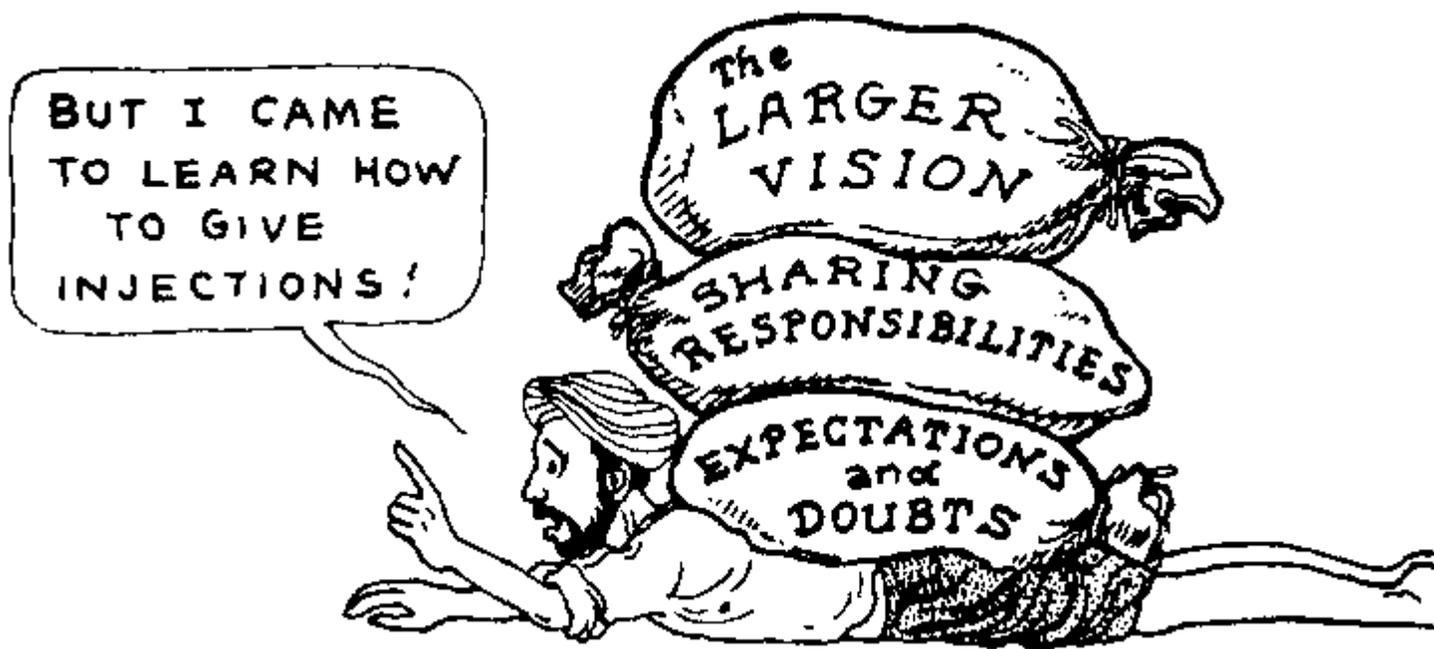
To start a training course in a positive way, and to avoid misunderstandings, certain things need to be discussed or made clear during the first few days. You may want to consider scheduling group discussions in the following areas:

- **Hopes and doubts** (of both students and instructors) concerning the course
- **Sharing of responsibilities** and planning (students and instructors together)
- What are the **characteristics of a good health worker?** Of a good instructor?
- Different ways of looking at **health, illness, and being human**
- Goals, objectives, and **the larger vision** of the program
- **Precautions, warnings**, and recognizing our own **limits**
- **Students' experiences** of needs and problems in their communities
- **Need for balance** between prevention, treatment, education, and community action

CAUTION: Although all of the above topics are of key importance and can lead to exciting discussion, they involve a lot of very serious talking. Also, some people may not be used to thinking about these ideas or may be afraid to discuss some of them openly. So in leading these discussions, **try to be sensitive to the feelings, fears, and needs of each member of the group.**

Also, because these are all 'heavy' subjects, it is wise not to weigh people down with too much at once. Space these discussions between classes and activities that are practical, have easier answers, and in which students learn by handling, making, and doing things.

Try not to burden students at first with too many heavy discussions. Balance discussions with learning of practical skills.



Hopes and doubts

Many training programs find it helpful to spend one of the first discussion periods giving everyone a chance to express his hopes and doubts about the course. Each student and instructor is asked:

- "What do you hope to learn from or get out of the training program?"
- "What fears, doubts, or uncertainties do you have about the program?"

Giving everyone a chance to express his expectations and doubts has three advantages

- It starts people talking with each other about things that really matter to them.
- It helps students realize that their ideas and concerns are important, and will be taken into consideration in planning the course.
- It gives instructors ideas for adapting the course to better meet the students' desires and needs.

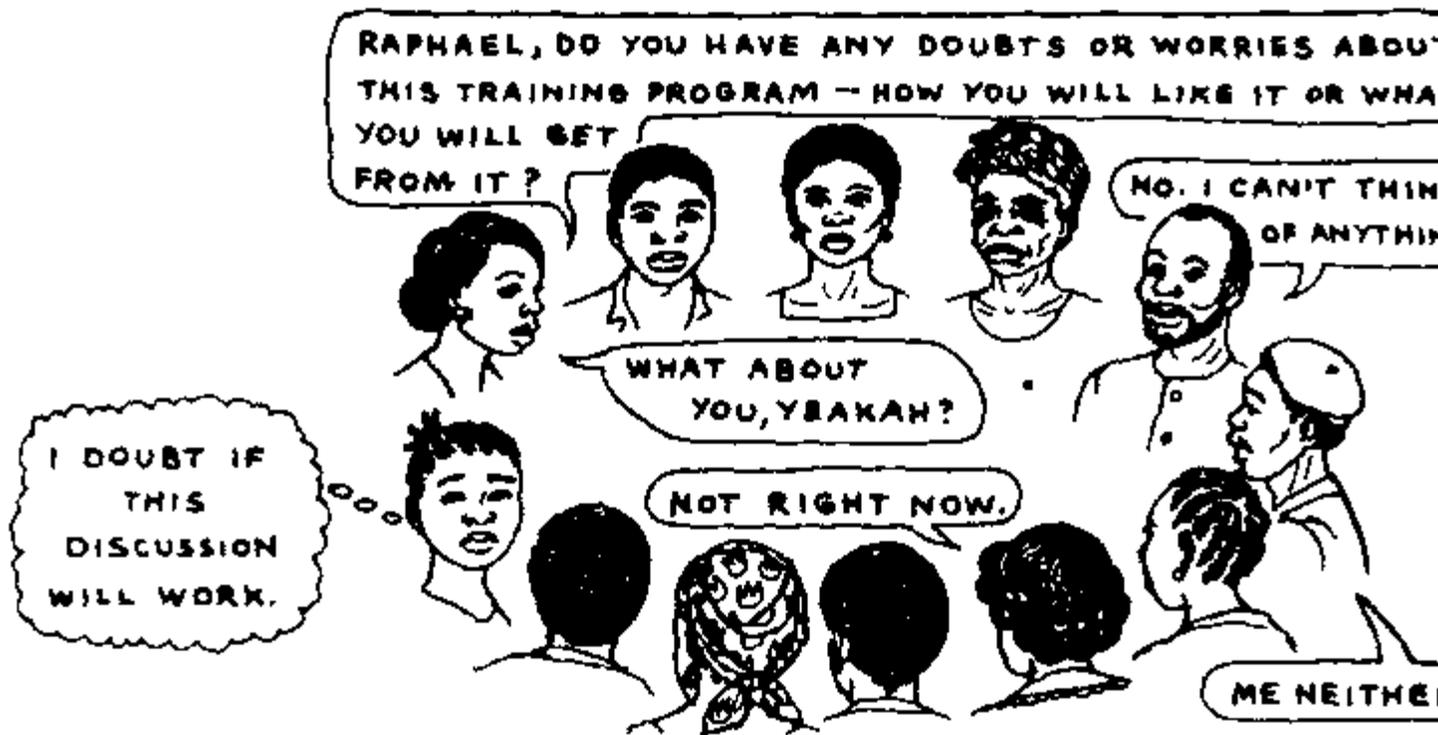
All this sounds good on paper, but will it work? Will new students, mostly strangers to each other, speak openly about their hopes and doubts?

Often they will not - at least not if asked in front of the whole group.

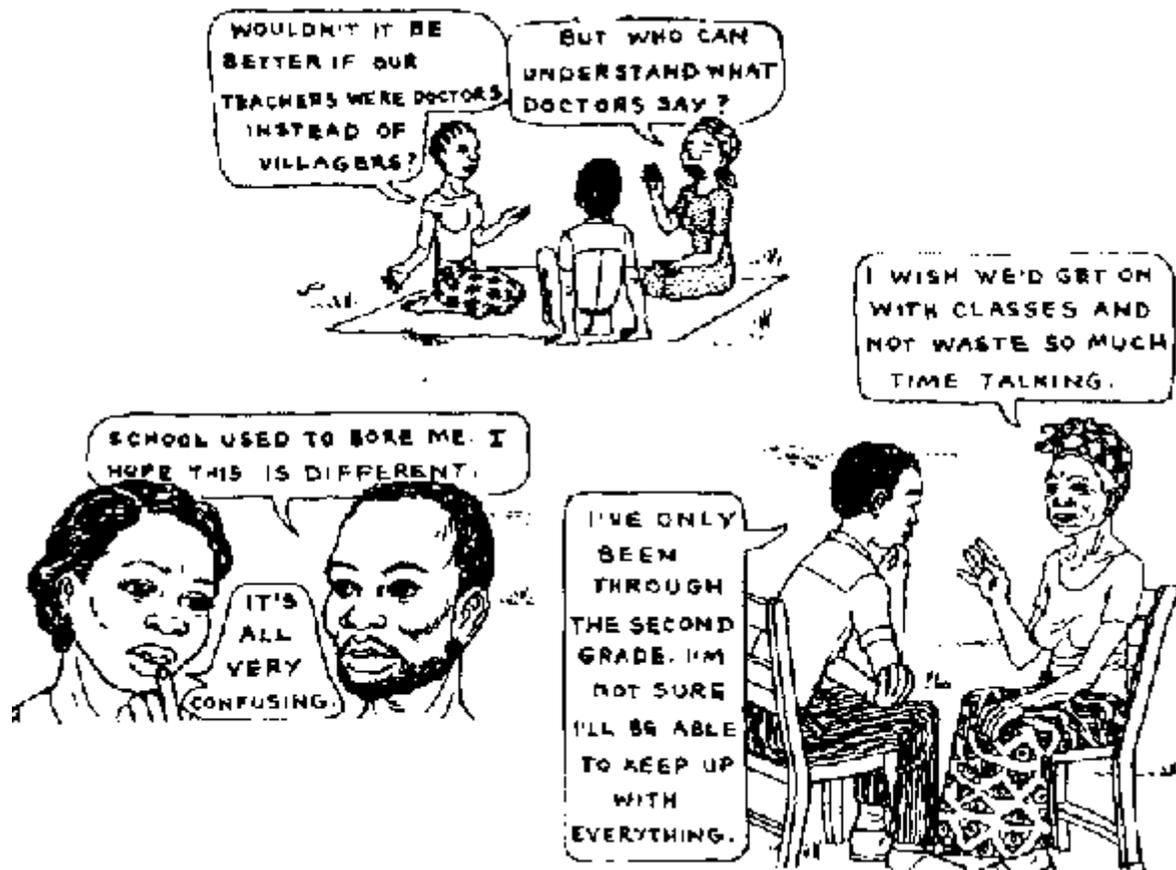
But if they split up into small groups of 2 or 3 persons, they usually will feel more comfortable about expressing their feelings. One person in each group can be chosen to take notes during these discussions, and later report to the whole group. It can be surprising how many important concerns come to the surface.

GETTING PEOPLE TO EXPRESS THEIR DOUBTS (the advantage of starting discussion in very small groups)

1. In a large group, people often find it hard to say what they think or feel.



2. But in very small groups they can speak out more easily.



3. So it makes sense first to get people saying what they think in small groups. They can then go back and report to the big group.



STUDENT COMMITTEES

The day-to-day preparations, organization, and running of a training program are a lot of work. If students can take charge of some of these responsibilities, a great load is taken off the instructors and shared by everyone. Students and instructors become working partners. It also gives students a chance to learn leadership and management skills.

Several student committees can be formed to take on the different responsibilities. This can be done during the first days of the course. If instructors serve on these committees, it is important that they take part as equals, not chiefs, and do the 'dirty work' along with the students.

You may want to consider any or all of the following committees:

PLANNING COMMITTEE: decides what the daily and weekly schedule will be, which classes will be given when and by whom, etc. (Having instructors on this committee is very important. But if a few students also take part, it is a valuable learning experience.

CLEAN-UP COMMITTEE: makes sure that the meeting and working areas used during the course are kept clean and neat.

RECREATION COMMITTEE: organizes group games, short stretching exercises between classes, joke telling, riddles, songs, and field trips. Plan some activities for free time before or after classes, on weekends, or whenever the group has been sitting still for too long.

The recreation committee can have the group play short, active games between classes.



For example, draw circles on the ground-one fewer than there are players. The person who is 'it' calls out an article of clothing, or a color. Everyone wearing that clothing or color has to run to another circle. Whoever does not find an empty circle is 'it'.

EVALUATION COMMITTEE: leads the group in constructive criticism of the course in general, the content of classes, the instructors, the teaching, everyone's learning attitudes, etc. The committee helps to straighten out problems, improve the ongoing course, and make suggestions for future courses. (Evaluation committees are discussed further.)

RECORDING COMMITTEE: takes notes, makes copies, and distributes sheets of important information not covered in books. (Participation of instructors is valuable here, too.)

In a 2 to 3 month course, responsibilities can be rotated every week or so. This gives everyone a chance to work on each committee.

CLARIFYING INITIAL EXPECTATIONS

Very early in the workshop, before the participants begin to sense how the workshop is likely to be run, I find it useful to ask participants to write down what they expect from the workshop. Specifically, they should note:

1. What they expect to gain from the workshop
2. What they expect the workshop organizers to do
3. What role they themselves expect to play

This exercise serves two purposes. It helps to sensitize workshop planners to the needs and expectations of the group particularly in terms of knowledge and skills desired; and it serves as a

benchmark of initial expectations against which it is possible to assess changes in role-perceptions, understandings of participatory learning processes, and so forth.

In defining the role they expect workshop organizers to play, participants often use terms such as "You will tell us..." "You will lecture on..." "You will teach us to..." They are likely to ascribe a didactic role to the workshop organizer. This is to be expected from persons brought up in a traditional system of education where the teacher is looked upon as the dispenser of knowledge and revered as a source of wisdom.

The same kind of expectation may be expressed by villagers when these workers meet them. One important goal of the workshop will be to break down this attitude of subservience and to build confidence among participants in the relevance and usefulness of their own contributions.

At the end of each day's work you may want to have participants check off their role on an activity list to create awareness of the many different ways in which they are being involved. Ask the participants to answer the questions on Activity Sheet A-1. It is important NOT to discuss with the group what their initial role expectations were until the very end of the workshop. Then they will be able to see what distance they have traveled.

PART OF A NEW GROUP

Which statement best describes the way you feel in a new group?

I generally:

- prefer to sit quietly and listen to others
- feel quite at ease taking part in discussion
- find myself ready for some form of leadership role
- sometimes wish I could take over and structure the discussion
- feel ill at ease
- prefer to listen for a while and then participate after I have a feel for the group
- other _____

(From: Pages 1-8 from Helping Health Workers Learn, Chapter 4; Pages 9 & 10 from: Srinivasan, Workshop Ideas for Family Planning Education)

Session 53, Handout 53C: Icebreakers and warm-ups

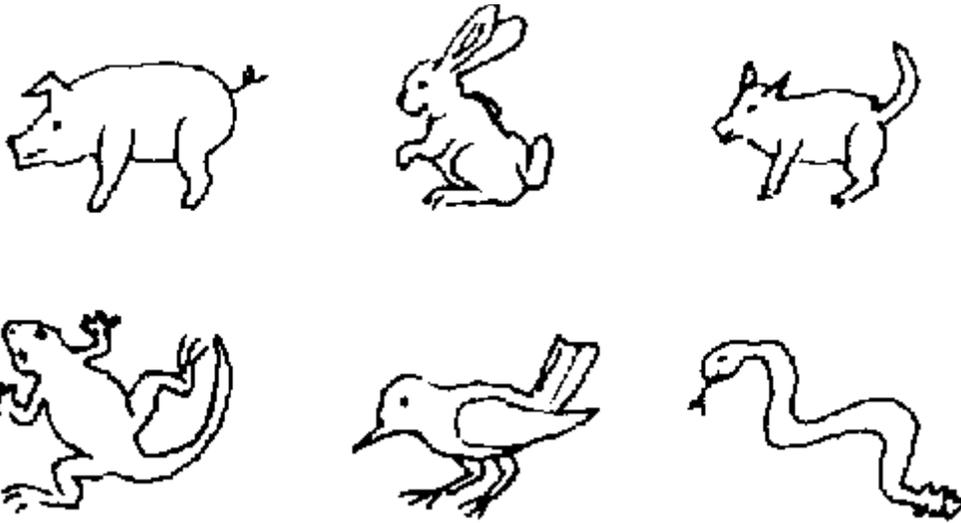
'BREAKING THE ICE' - methods to help a new group meet each other, relax, and start talking

When a group comes together for the first time, some people may already know each other, but many may not. Often those who are already friends will sit and talk with each other, but feel uncomfortable about speaking with those they do not yet know.

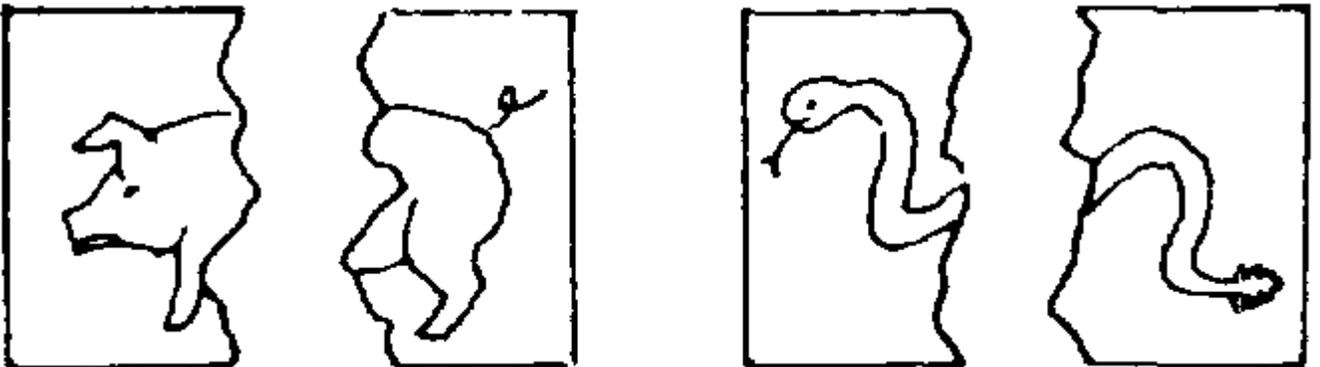
Various games or 'tricks' can be used to help people get to know one another and feel comfortable about taking part in a meeting or a class:

1. PAIRING OFF FOR INTRODUCTIONS

Draw hearts, animals, or other figures on slips of paper. (Draw one figure for every 2 people.)



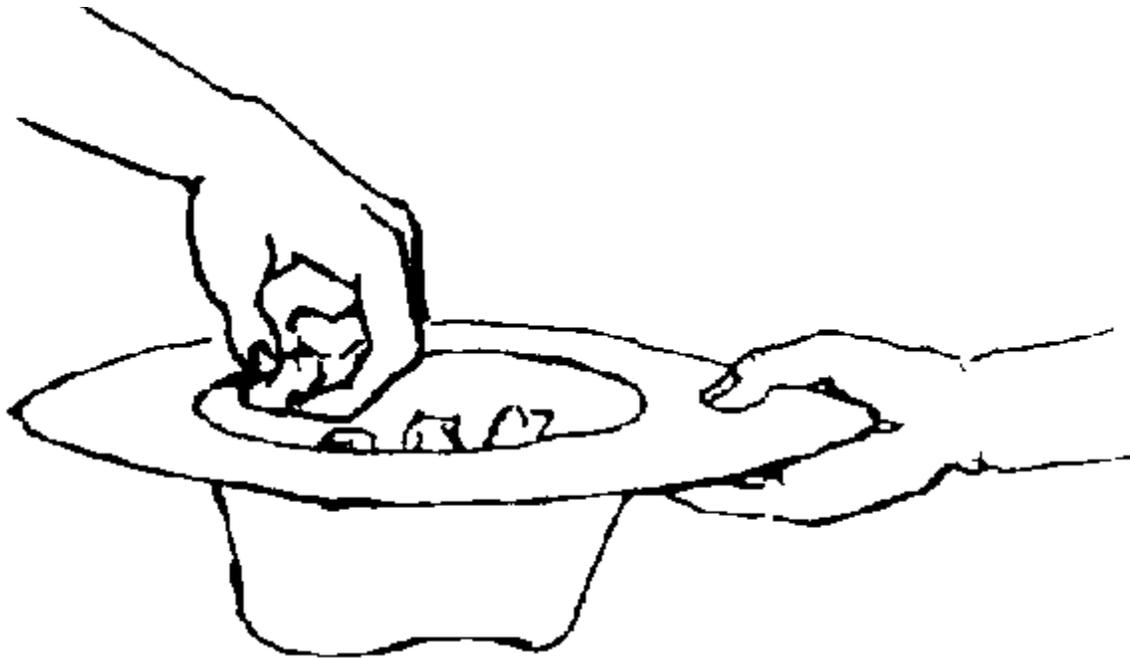
Tear each slip in two.



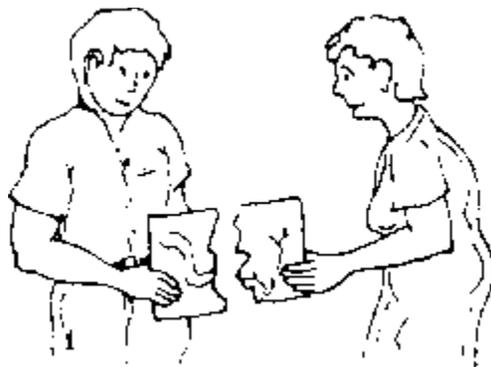
Crumple the pieces into balls.



Put them into a hat and let each person pick one.



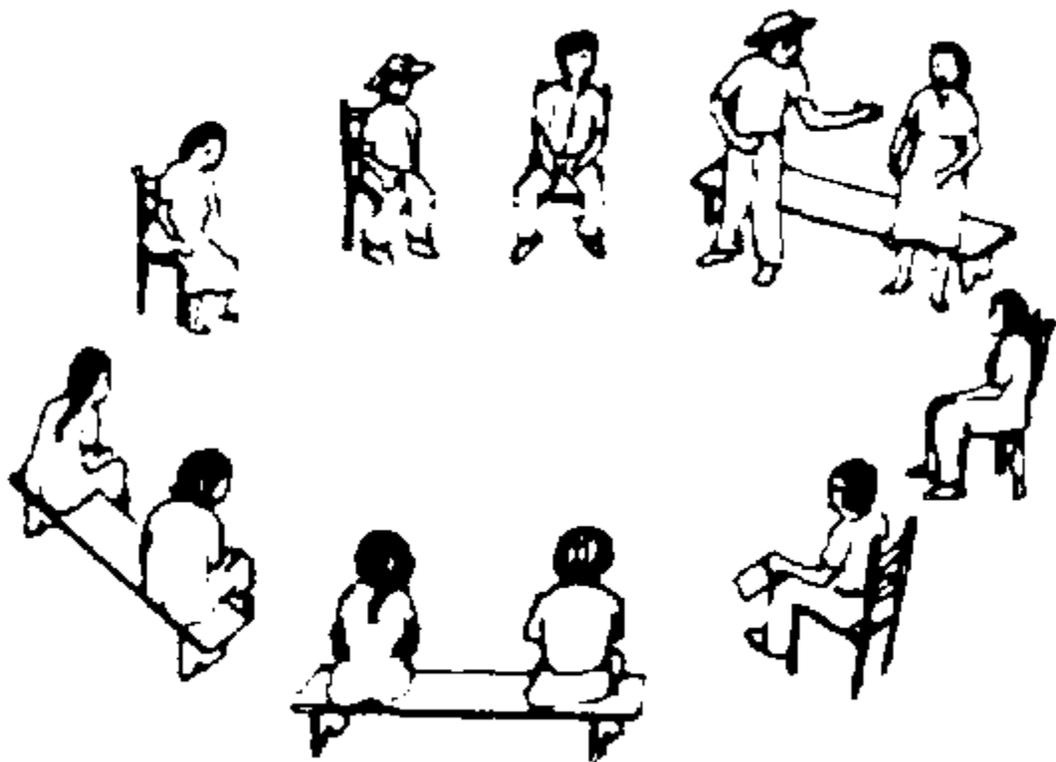
Now each person tries to find his 'other half'.



Each pair of people with matching halves spends 10 or 15 minutes getting to know each other.

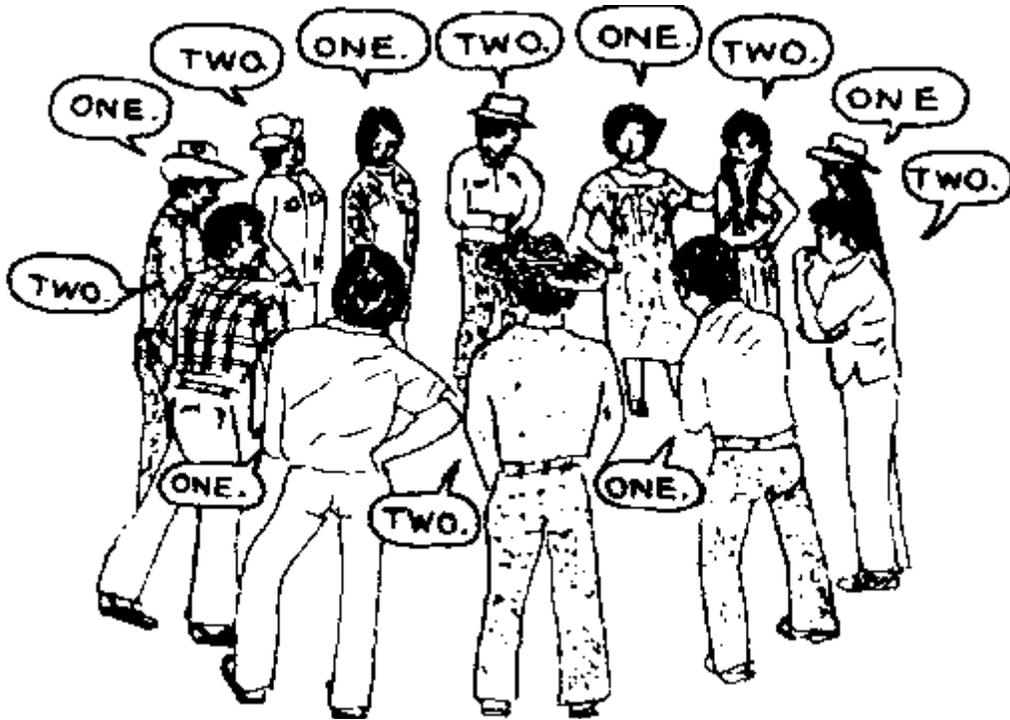


At last the group meets again, and everyone takes turns introducing his partner to the group.

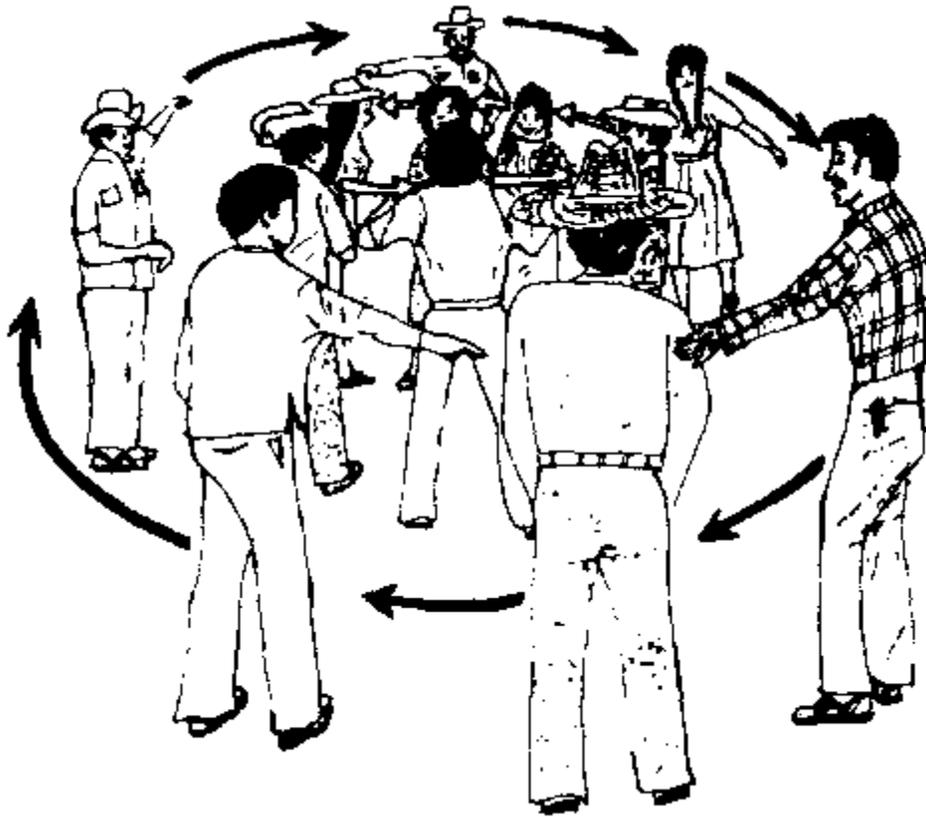


2. MERRY-GO-ROUND OR 'TRAINS'

The group divides into two halves by counting off - ONE, TWO, ONE, TWO - around the circle.



Then all the ONE's form a circle, and all the TWO's form another circle around them.



When the leader says "GO," circle ONE runs in one direction and circle TWO runs in the other - whistling and puffing like trains.

When the leader shouts "STOP," each person turns to the nearest person in the other circle and introduces himself or herself. Each pair talks together about a topic the leader or someone else has suggested.



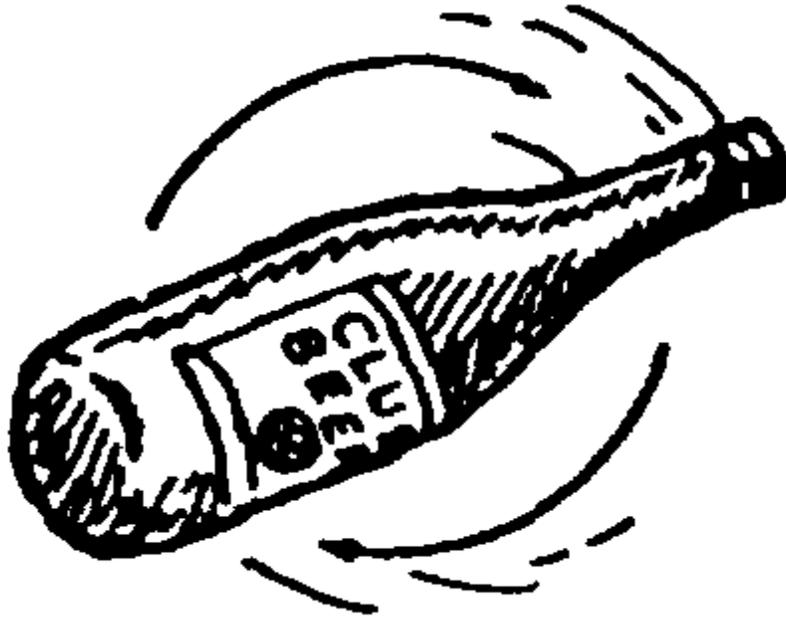
After a minute or two, the leader shouts "GO" again, and each circle at once begins to run as before until the leader again cries "STOP." This can be repeated 4 or 5 times.

Afterwards the whole group can meet to discuss what they learned.

3. SPIN THE BOTTLE

This simple game is a fair way to pick one member of a group to answer a particular question, start off a discussion, or do a certain job. If more than one person needs to be picked, the bottle can be spun as many times as necessary.

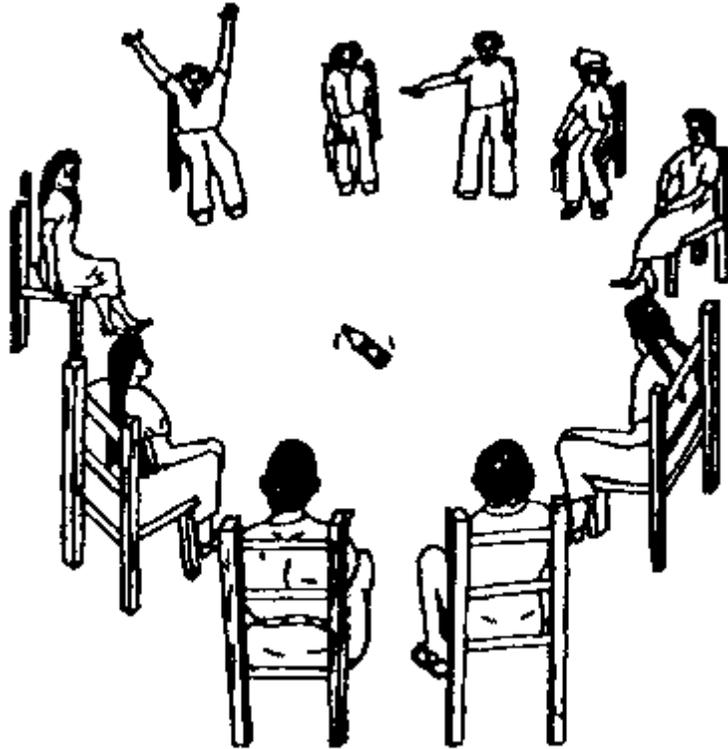
Bottle



Everyone sits in a circle. One person spins an empty bottle on the floor in the middle of the circle.



The person the bottle points at when it stops is the one who is picked.



After he answers the question or does the job, the person who was picked spins the bottle again to see who will be picked next.

Silly? A waste of time? Yes, but...

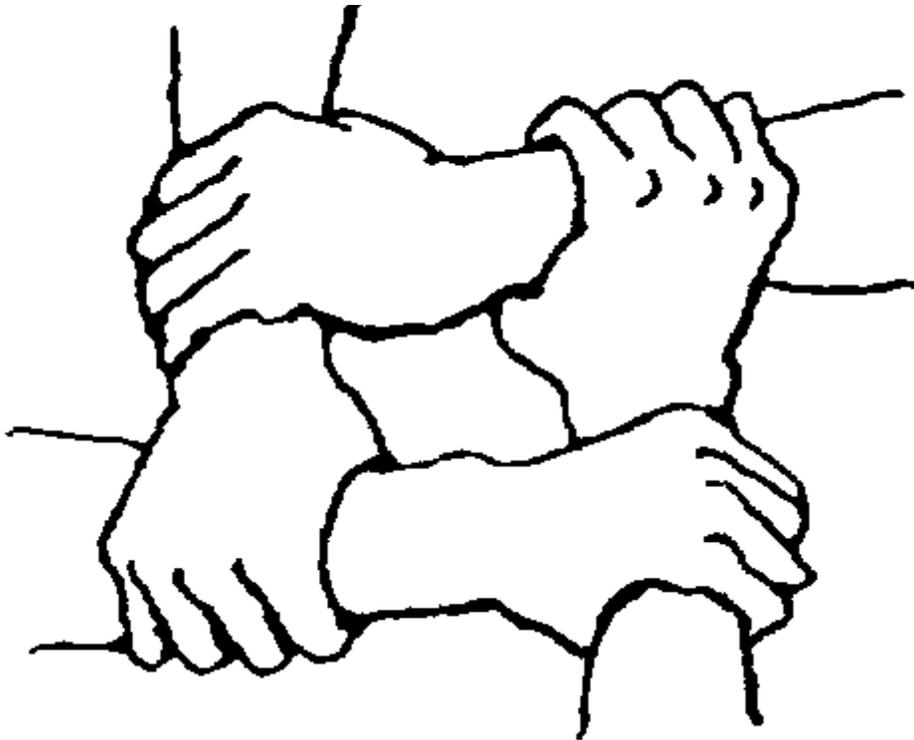
'Ice-breaking' games may seem ridiculous. In fact, they often are. Some people may not like them or may feel they are a waste of time. Sometimes they are. But sometimes they can help a group that is too serious or stiff, to loosen up and begin to enjoy each other.

A friend who has worked for many years in community health says "To waste time is to save time." Taking time to 'break the ice' and help people begin to relate to each other openly can make a big difference in what people learn from the course.

We must never forget that, although latrines and medicines and vaccines are important, the most important factor that determines human health is how people work and live and share and learn together.

If we can all learn to work well together in our training program, perhaps we can do so with those in our villages or neighborhoods. And this would be a real step toward health! So remember...

To 'waste time' getting to know and like each other may save time later.



HAVE A GOOD TIME

For a successful training workshop the three most important things, I find, are the following:

1. Putting the participants at ease
2. Involving them successfully in problem-solving experiences
3. Encouraging and supporting them in creative self-expression

If enough confidence and enthusiasm are generated, the participants carry the ball from then on. Enjoyment of the workshop and an enlarged self-concept are important factors in good learning.

This is not to minimize the importance of thorough planning. Planning, in fact, must include both the individual activities and exercises designed to encourage participant involvement and the laying out of a logical sequence of experiences through which, bit by bit, a whole new concept begins to emerge and is internalized.

WARMING UP

To put participants at their ease there are many techniques of group dynamics which can be applied almost anywhere. The important thing is to create a climate of mutual acceptance and to reduce self-consciousness.

In a country where talking about oneself can be mistaken for boastfulness, I find it best not to ask members of the group to introduce themselves. Instead, participants can be paired, to interview each other and make mutual introductions to the group; or, loosened on the interviews, short descriptions can be written without disclosing the person's name. Descriptions are then mixed together and read aloud one by one. The group either identifies the person from the description, or the person described stands up to acknowledge it.

THE FOLLOWING ARE SOME ICE-BREAKERS AND ENERGIZERS THAT HAVE BEEN USED IN THE PAST:

ICE-BREAKERS

- 1) Alliteration Name Game. Each member of the group chooses an adjective to be attached to their name which begins with the first letter of the name. Examples are - "Awful Alice", "Loquacious Larry", etc.
- 2) Roles in your life - on 5 x 5 cards. Prioritize and share in small groups.
- 3) Fire of Your Life. Participants have the time it takes for a match to burn to say what they want about themselves. This is particularly effective with large groups.
- 4) Name, home town, favorite food or dessert.
- 5) Cut maps, cartoons, pictures, blank paper in puzzle shapes.
- 6) What's in a Name? Participants share thoughts about their names. Do I like my name? Meanings? Origins? Famous ancestors? Anecdotes, etc.
- 7) Dyads and introduce partner.
- 8) Name Memory Game. Group sits in a circle. The first person gives his or her name. The second repeats the first name and gives own name. The third repeats the first two and adds on own name; continue around the circle with the last person repeating all of the names in the group.
- 9) Humdinger. Trainer selects four or five popular songs, the titles duplicated on small slips of paper enough times to meet the size of the group. Each participant selects a song title from a hat and is instructed to pace around the room humming the song locating other members of the same song group.

ENERGIZERS

Energizers are short exercises meant to wake people up, create/change a mood and/or focus people's attention on you as you direct them to the next activity.

The energizers listed here are only suggestions. If you have others use them. It is important to choose exercises with which you are comfortable and which best serve your purpose.

The trainer must be lively and encouraging in order to set the proper tone and environment for the participants to be willing to participate.

Energizers are usually most timely at the beginning of sessions or exercises and are also useful as a "break" activity.

Tapping

Ask participants to stand up and stretch their hands as high as they can above their heads. Then, with their open palm ask them to begin tapping their head, first at the top, then all over - ears, cheeks - then move gradually to their shoulders, stretch to their backs as far as they can reach,

then to their chests, listening this time - tapping the chest harder then to the stomach, each leg and finally all the way back up the body ending with a yell.

Buzz-Fizz

Form small groups of 5-7 people. Count around the group. When you come to a number with 5 in it, or any multiple of 5 you say "BUZZ". When you come to any number with 7 or a multiple of 7, you say "FIZZ". If you come to a combination number - "BUZZ-FIZZ". If you make a mistake, begin again at 1.

The Big Chair

Ask participants to stand up and form a close circle, facing back to front. Ask them to put their hands on the shoulder of the person in front of them and massage his/her neck and shoulder vigorously for a few moments. Then, ask them to bend slowly at the knees until they can feel the back of the person's knees in front of them, and then stand. Slowly again, ask them to bend their knees again like they are sitting down in a chair, sitting on the knees again like they are sitting down in a chair, each person sitting on the knees of the person behind them. After a few moments, someone usually loses balance and the chair collapses.

Knots

Divide the large group into smaller groups of 5 to 7 people. Have each group form a circle facing inward. Ask each participant to reach across the circle with their right hand and take the right hand of the person opposite them. Ask them to do the same with their left hand, grasping the left hand of a different person. Now, without letting go of each other's hands, ask them to untangle themselves so that they form a circle of people holding hands. They will not necessarily all be facing the same direction.

Partner Push

Ask participants to stand up and face a partner, legs far apart. Have them place their outstretched palms against each other and try to push each other over. This is impossible to do if they are doing it right.

Tug of War

Participants divide into two teams and, using an imaginary rope, pull as hard as they can in opposite directions.

Mirroring

Partners A and B face each other. A. begins a movement such as making a face or moving arms. Slowly, B mirrors the exact movement. After a while, call for B to initiate the action while does the reflecting.

Yoga Breath-of-Fire

Individuals stand at ease. Following the leader's movements/ they move through the following steps:

- Legs shoulder-length apart, with knees somewhat bent.
- Make fists with hands and place on chest, elbows horizontal to floor.
- Inhale - arms go straight out to side.
- Exhale - arms pulled back to chest position.
- Begin rapid (breath-of-fire) breathing.

Zoom

Have participants sit in a circle facing inward. Leader turns his head to person on right and "sends" him the word "Zoom". The receiver then turns to the person on his right and does the same thing, until it makes a complete circle. Leader can make it go faster, ask the participants to "Do it with anger;" "Do it sexy;" "Do it whispering". To end the circle, leader says "Zilch".

ALL OF MY FRIENDS

Set chairs in a circle facing inward. There will be one less chair than the number of participants, with the remaining member standing in the middle of the circle. He will say, "All my friends wear red tee-shirts" (or whichever characteristic he chooses). Everyone wearing a red tee-shirt must vacate their chair and they, along with the one in the middle, scramble to sit again. Whoever is left in the middle repeats, "All my friends (are tall, wear glasses, like pizza, etc.)". Game continues as long as trainer sees fit.

IN THE RIVER, ON THE BANK

Everyone stands in a circle with their arms around each other. One person stands out of the circle to give commands. For "in the river" everyone jumps forward, for "on the bank!" everyone jumps backward. Commands don't have to be given alternately but should be given quickly. A person who makes a mistake and jumps the wrong way on a command leaves the circle. Game ends when everyone has dropped out of the circle.

(From: Pages 1-3 from Helping Health Workers Learn, Chapter 4; Page 4 from: Srinivasan, Workshop Ideas for Family Planning Education; Pages 5-8 from: Training of trainers modules, Peace Corps)

Session 53, Handout 53D: Organization and logistics

C. Planning the Workshop

One key to a successful workshop is thorough planning by the entire training team: facilitators, media specialists, artists, health and nutrition specialists, and secretaries. The team members should meet together for several days to plan the workshop, to decide upon the objectives, to prepare the schedule, to create learning materials, and to gather resources. The decisions are made by all the members of the training team, not by one trainer or planner. This kind of collaborative effort incorporates the participatory approach into the planning process as well as in the training program.

During the planning session, team members divide into smaller groups to develop learning activities. In this way it is possible to use the individual and group talents of the training team. The smaller groups take responsibility for conducting the activities during the workshop, preparing the materials and gathering the resources that they will need. Each trainer should also

have the opportunity to try out a new activity before the workshop. At least five full days are usually required to plan a two-week workshop.

Workshop Check List

ID planning and implementing participatory nutrition education workshops, there are some important factors that need to be considered. A series of three workshops each with carefully planned follow-up activities is basic to the approach. In addition, having trainers and trainees working together in developing the nutrition and health education materials is integral to the process.

Other factors to consider are summarized below.

Country Selection

1. Is there a national commitment to supporting local community development programs?
2. How much national and local interest in preventive health and nutrition education programs exists?
3. Are community-based health extension workers available locally?
4. Do you have the full cooperation of a strong local agency to coordinate workshops and follow up on activities?
5. Are local resources available for training and materials development, and for production and distribution of educational materials?
6. Has the government approved the project and the training of health workers associated with local agencies?

Trainer Selection

1. Select a team of trainers with one trainer for each six to eight participants. The team should include a nonformal education specialist; a nutrition/health specialist; a materials development specialist; an illustrator; and a workshop coordinator and sufficient secretarial/logistical support staff. At least one member should have experience in working with participatory techniques.

2. Is each member of the team:

Experienced in working with community-based workers and organizations?

Knowledgeable about local conditions and cultural beliefs and practices?

Interested in preventive health and nutrition? Aware of national approaches and priorities?

Willing to learn participatory training techniques?

Committed to take an active part in all stages of the project and workshops: planning training, and follow-up?

Participant Selection

1. All participants should be community-based health workers or other persons from the community committed to working in nutrition and health (preferably selected by the community). Selection should not be based on technical knowledge or education.

2. Is the potential trainee:

Able and willing to commit time and to work with the community?

Enthusiastic about new ideas and interested in applying them in their work?

Committed to take part in all workshops and in follow-up activities?

3. Other factors:

The participants should represent local and government agencies that are interested in health and nutrition and have programs in local communities.

The participants' agencies should be interested in applying a participatory methodology in their programs.

Participants should come from communities or areas near each other so they can work in teams.

Workshop

1. Arrange a series of workshops spaced over a period of several months to allow time for field practice of materials and follow-up activities.

2. Select a workshop site according to these criteria:

Congenial training atmosphere,

Lodging and meals offered at site,

Availability of nearby communities that are representative of communities where workshop participants work and where field practice can be done.

3. During workshops provide time for recreation for participants and trainers.

4. Build on each workshop and incorporate the skills acquired in the previous one.

MATERIALS Development

Criteria:

1. Use local culture as a basis for content and application of the materials.

2. Adapt traditional communication techniques such as stories and theater popular among community members.

3. Design materials that are appropriate for both literate and illiterate audiences.

4. Create materials that are visually pleasing and are designed to stimulate action.

5. Consider factors that influence reproduction possibilities when designing the materials (e.g., variety of color).

Process:

1. Develop sample materials in the planning session prior to the workshop.

2. Base nutrition and health education materials on the needs assessment conducted by participants following the first workshop.
3. Have participants and trainers, in consultation with community members, identify topics, create priority messages, and produce materials.
4. During the workshop, develop some materials that can be completed and distributed to all the trainees.
5. Keep drawings and design simple enough to encourage trainees to participate in developing materials. These can also be illustrated by an artist during the workshop.
6. Reproduce materials in country using available techniques or train locally if necessary. Share the materials with relevant private voluntary and government agencies.
7. Give participant supplies for developing materials in their communities
8. Demonstrate that one material can be used in several different ways, such as stimulating discussion and conveying a message, depending on the purpose of the activity.

Follow-up

1. Follow-up visits to the participants are held immediately after the workshop. Plans for visits are made during the workshop.
2. The project coordinator makes follow-up visits frequently (once every month or two) to the communities.
3. Visits are planned to coincide with scheduled learning activities at community meetings.
4. District meetings between trainers are held to provide an opportunity to share ideas and resources.
5. Trainers provide technical support, information about activities and additional supplies and resources to trainees.
6. The coordinator helps link trainees with local agency resources.
7. The coordinator helps trainees integrate the new skills and activities into their job responsibilities.
8. The coordinator meets with local agency supervision to encourage support of the trainees in their work.

Following Up

Community workers are too often sent to training workshops where they are stimulated to take action with new techniques and information, only to return to their communities with very little in the way of resources or support. In order to work effectively, a community worker will need encouragement. This can come from frequent follow-up visits by a member of the training team, by other workers who attended the training sessions and by the community members themselves. These support systems must be developed through the workshops and the visits that take place

afterwards. In our two series of workshops, it was the project coordinators who assumed responsibility for these follow-up visits. In addition, during the workshop, teams of community workers were developed according to the regions they came from so that they continued to work together and support each other after the workshops, when they returned to their communities.

A well-planned follow-up visit happens once every one to three months. This visit is arranged between the trainer and the community worker well in advance. The first one can be set up during the workshop. The visit should also be reported to the local leaders and to the community workers' supervisors, some of whom may have participated in the workshop.

In doing the follow-up visits, the trainers should allow for at least one full day with each community worker or team of workers in the same area.

The visits should include the following:

- meeting the local officials;
- time with the worker or team of workers to discuss problems that may have arisen and to review the activities they have tried;
- a review of the preparations for the learning experience to be held that day;
- observation and participation in a learning experience to help build the worker's self-confidence and the community's image of that worker;
- sharing new ideas and information; and,
- providing materials and resources that the community workers have requested.

Many of these aspects can be included in the get-togethers that the work teams have in their communities. It is important to encourage community workers to ask each other for assistance with the new techniques, activities, and materials so as to build an ongoing support system. The community workers should be able to contact the trainers for assistance between the scheduled follow-up visits, if necessary, and to ask for help from their own supervisors. The project coordinator should meet with the local agency supervisors to encourage them, to provide resources when necessary and to support community workers as they try to apply new methods in their work. In the Dominican Republic, the members of one community decided to organize a project to plant home vegetable gardens. The team of community workers helped them to organize the project and make a request to the local agriculture agency for seeds and fertilizer.

During the follow-up visits, it is useful for the community workers to help the project coordinator list important points to note during their field activities. This list could form the framework for evaluating the project. Some of the points to consider might include the following:

How many learning experiences have been done by the community worker?

Do the villagers actively participate?

Has the community worker observed any changes in attitudes or practices among the community members?

What are the interests of the people and do they want further information on a topic?

What local resources are available? Are they used?

The follow-up visits are important for planning subsequent workshops. In our experience, after the first workshop, the trainees returned to their communities and used the new approaches to identify health and nutrition problems. The trainers discussed these problems in follow-up visits and, with this information, were able to prepare helpful educational materials during the planning session of the next workshop.

Support and follow-up systems are critical to the success of the program because the community workers need support to feel self-confident and comfortable in using the new techniques they have learned. We believe that the frequent follow-up visits by the project coordinators contributed to the application of the new techniques.

4. Management of Training

The training courses need to be tightly organised. We believe that one of the truly major problems in nonformal education is inadequate organisation. So often it appears that the adult educator is content simply to have his heart in the right place - and of course that is important, but it is not enough. Other professionals organise with great care to achieve desired ends - and they have a lot to offer the adult educator if he has the humility and the heart to learn.

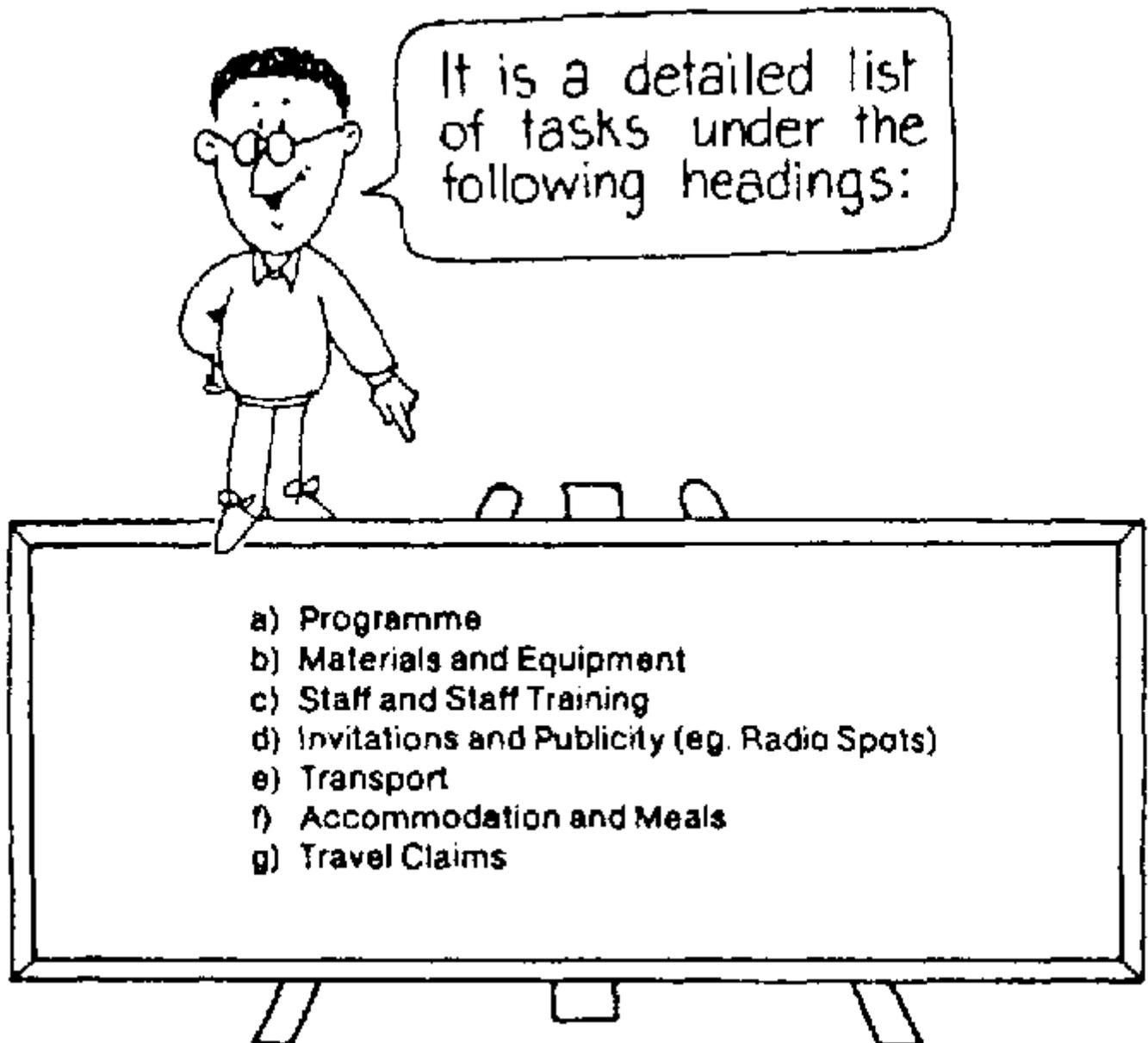
Let's look at one example.



The air line pilot is responsible for his passengers, his crew, and his plane. The adult educator is responsible for his colleagues, his clients, and often lots of equipment. The adult educators work is just as important as, say, airline transport. It must be handled with the same meticulous responsibility.

Much of professional organisation has to do with reference to lists of procedure - checklists. For instance the airline pilot uses a checklist to ensure that all is as should be before his aircraft takes off and he uses checklists for all other stages of each flight.

An example of a training course checklist is given on the following page.



For each task a person should be made responsible and a deadline given. Once this checklist is drawn up, it provides the agenda for the meetings of the committee responsible for running the course. If the checklist is used sensibly at all stages, it will help make the training course produce the desired results. And if the checklist is prepared in time, and used properly, it will help prevent the familiar last-minute desperate rush.

TRAINING COURSE CHECKLIST

Training course checklist



1. **Programme** - see Detailed Time-table

2. **Materials and Equipment** (see Separate List)

Storage

Security

Arrangements and staff for issuing them

3. **Staff and Staff**

Training Number of staff required for course

Staff Training Timetable

Staff Accommodation and Meals

Staff Transport

Authority for release of staff from regular work invitation to staff to attend training course (purpose, dates, transport and other administrative arrangements)

4. **Invitations and Publicity**

Invitation letters to RLG leaders (NB Bring own bedding, eating utensils, etc.)

Radio Spots

Announcements in Public Meetings

Posters

Press Releases

Information note to parents through school children

5. **Transport**

Preparation of transport schedule allowing for:

a) providing of transport for trainees, or

b) having trainees make their own way to the course (transport costs to be reimbursed on arrival)

6. **Accommodation**

Sleeping accomodation for	_____ men
	_____ women (sometimes with their small children)

- Large conference room
- Group training rooms (Divide expected participants by 10)
- Staff meeting room/office
- Storage room
- Toilet and washing facilities
- Dining space
- Cleaning staff

7. Food

- Menu
- Food Checklist
- Chief Cook
- Necessary Staff
- Briefing cooks on course timetable

8. Travel Claims

Imprest System for reimbursement (including proper records)

(From: Pages 1-4 from Bridging the Gap, pp. 14-17; Pages 5-6 from How to Run a Radio Learning Group Campaign.)

Session 53, Handout 53E: Workshop design sheet and schedule

Workshop design sheet and schedule

Objective	Activities	Time	Materials	Evaluation	Activity Coordinator

Session 53, Handout 53F: Health-worker training course

by L. Ann Voigt

** Ms L. Ann Voigt is a Nurse Educator in the US Department of Health & Human Services of the US Public Health Service. She developed this teaching module for the Combatting Childhood Communicable Disease Project of the Department Materials adapted from David Werner/Bill Bowstet book Helping Health Workers Learn, and Frank Abbatt's book Teaching For Better Learning have been included in the module.*

From Contact No. 78

This text is a condensed version of the original.

Training cannot solve all the problems which might prevent health workers from doing a good job. Other service conditions can seriously handicap health workers. These are lack of medicines, logistical support, record and referral systems or service plans, or the inaccessibility (financial, geographical or cultural) of the service to the population. In such situations, training cannot really help and dealing with these problems is, clearly, outside the scope of a training course.

Training can help in situations like these:

- If health workers have not learned how to do correctly some or all of the tasks that make up their jobs.
- If new tasks are added to their duties.
- If work methods, equipment or materials have been changed.
- If health workers rarely use a skill and need to be reminded of it.

Health workers' motivation and attitudes also affect how they do their work. They may do a task badly because they don't have enough time, are bored or resentful, or nervous because you are watching them. Providing enough time and/or additional help, changing a job description, giving more praise or other recognition of work well done, can help. These types of solutions do relate to training and are discussed in this course.

ON-THE-JOB TRAINING

Supervisors can train people while they are at work. A routine visit to a health facility is a good time to teach a new task or to correct performance problems identified during the visit. Special plans should be made to do this. Routine supervisory visits should be scheduled in advance and you should stay with health workers long enough to observe them during a whole work session and to answer questions and discuss problems afterwards.

1. Identify Training Problems

When you identify a work problem at the facility, ask yourself:

- Can it be corrected by training?
- If so, is it best solved by individual or group training? (Does it concern only one worker, several members of or an entire health team ?)

2. Determine the Best Time for Training

It is not good to interrupt health workers to talk about each problem when you see it. Make a list of the problems observed and wait until the clinic session is over and the patients have gone home. An exception is if there are few patients and you can comment without disrupting or causing embarrassment, or if you see a potentially life-threatening problem.

3. Determine the Best Way of Training

Health workers tend to receive a lot of blame and little praise. Start by recognizing and praising work that has been well done. Assure them that you are there to support them. Listen to them! Let them identify their problems first and then discuss problems you have identified. Remember that the main purpose of your visit is to strengthen their work.

If the problem is specific to a team or several members of it, a review session for that team might be called for. If the problem concerns an individual health worker, talk with him/her after clinic. Praise what has been done well. Describe what was done incorrectly or not at all. Describe and demonstrate how to do the task correctly. Have the worker repeat the task. You can also teach by helping during clinic. As you work, staff members will observe your correct technique. After clinic, you may need to review points for them. Take care not to take over their duties however.

EXERCISE A

During a supervisory visit to a health centre, you observe staff weighing babies. You note that the scale is not correctly balanced. None of the staff are checking the scale before each weighing to see that it balances on zero. As supervisor, what do you do?

FORMAL TRAINING CLASSES

Sometimes training cannot be done during a supervisory visit. A training session or workshop may be necessary.

1. Select Trainees, Trainers and Training Site

a. Trainees

The persons selected for training may be experienced health workers who will be performing additional tasks, or are taking more responsibility. They may be newly-hired persons who have had no previous experience and/or training in health-related work.

In primary health Care, the aim is for health workers to come from, and be responsible to, the community. Therefore, trainers should discuss the health worker's job with representatives of the community, e.g., the village health Committee. This will help the community to choose the right person or people to receive training.

b. Trainers

Health workers may be trained by supervisors, professional trainers or health workers like themselves who have received special training, or are more proficient.

In choosing who should do the training, remember that teachers may have a different social and educational background from that of their students and be out of touch with the students' real-life situation and work setting. A person with a similar cultural and social background, who comes from the same or a nearby area and speaks the local language of the trainees will, however, usually provide the best training.

Story

A visiting nurse attended a training course for village health workers (VHWs), taught by

experienced VHWs. She trained health auxiliaries and thought the village-level instructors could have conducted the course better. So they suggested that she give a demonstration lecture on "Preventing dehydration".

The nurse's lecture was carefully timed: 40 minutes lecture and 10 minutes for questions. She covered viral and bacterial diarrhoeas and electrolyte depletion briefly and expertly, naming the major causes and describing the physiology.

Story



When she finished, she asked trainee after trainee if they understood how to prevent dehydration in a child with diarrhoea. Only two persons had understood her lecture: the two who had studied in secondary school. One of the trainees had made a list of more than 20 words which no one in the village used. He asked her to explain some of them. Each time she tried, she used two or three more words that nobody understood. A village instructor then asked if she could give the lecture again using more simple words and examples from village life. She said she didn't think she could and asked a village instructor to do it for her the next day.

The following morning, the local instructor, instead of starting with 8 lecture, placed two glasses on the table. The night before, he had put flowers in both glasses. He had added water to one but not the other. He asked the trainees why one flower was limp and the other still fresh. After some discussion, he asked them what happens to a child with diarrhea. The trainees themselves made the connection between diarrhea and dehydration, based on this example and their own experience of seeing children sick with diarrhoea.

The local instructor used village names for different parts of the body. He had every trainee make oral rehydration solution (ORS), using containers from nearby homes. By the end of the class, everyone knew how to make ORS and how much ORS the child with diarrhoea needs to drink every day.

The visiting nurse saw that, although the local instructor did not use the detail and terminology she used, the trainees had learned how to prevent dehydration, and had taken an active part in the classes.

Being villagers themselves, the instructors could build on trainees' own knowledge and experience. This technique is very effective and is usually easier for a local person than an outsider.

c. Training site

The place selected for training will depend on the type of health worker being trained, the setting in which they will work, the facilities available, and where the trainees can be accommodated.

Trainees need to learn in a situation as similar as possible to that in which they will be working. To train VHWs in a district hospital may be just as inappropriate as training hospital surgeons in the village. They would not be exposed to the type of work they would be doing in the future. Even two workers from the same category would do a job differently in different settings. For example, sterilizing syringes is different in a village without electricity than in a university teaching hospital where electricity and autoclaves are available

2. List the Tasks for which Training is Needed

When you have determined that training is needed for a specific situation, you need to obtain or develop a job description for the individual worker, or group/category of workers

A good job description should list:

- the tasks to be performed
- the decisions to be taken
- the procedures to be followed
- the information to be collected
- the activity to be evaluated but NOT what the worker needs to know, understand or be aware of

a. List the tasks to be done to accomplish the job

Job descriptions seldom list all of these Ask the supervisor or health workers what tasks they needed to do to complete the job. List the tasks in the order in which they are done Also, keep all related tasks together e.g., all immunization tasks

Example

A Public Health Nurse's job description slates that one of her jobs is MCH weekly clinics, including immunization outreach clinics. The tasks needed to complete this job are:

- identify target populations
- motivate community members
- schedule clinic

- prepare equipment and cold chain for vaccines
- set up clinic
- provide health education
- screen children
- immunize children
- record immunization
- clean up site
- inform community of return date

EXERCISE B

A newly hired public health nurse in a community hospital must develop a training programme for community health workers (CHWs) who will work in a diarrhoeal disease prevention programme. They worked in two MCH activities previously immunization and malaria prevention. List all the tasks (two of which are already listed) to be carried out by the CHWs to do the job of "preventing diarrhoeal disease".

1. Encourage breastfeeding
2. Teach good nutrition.

3. List the Steps in each Task

Each task should now be broken down into steps. This describes exactly:

- how the task is done, i.e.,
- what health workers need to know to perform it effectively, and therefore
- what needs to be taught in training you do this, ask yourself what is the correct technique, why do each step, and what are the most frequent mistakes in doing this task?

After identifying the most important steps which make up a task, decide which ones the health workers already know how to do and which ones they need to learn to do. You will only need to train them to do the steps they don't already know how to do.

a. Obtain information

To write the task description, select the most appropriate sources of information. Several of the most appropriate sources of information should be used since each has advantages and disadvantages. Some appropriate sources are identified below.

Source of information	Advantage	Disadvantage
Your own experience	If you had experience in the tasks to be analyzed, you are certainly the most convenient information source.	You may have had neither enough, nor the right experience. Your work could have been under different conditions than those under which the trainees will be working. Your method may not necessarily be the best one.

Discussions with health workers and specialists generally regarded as being good at their jobs.	You will be told what is practical and feasible in the field. You will also gain the experience of several persons. You can obtain responses that describe the specific actions, decisions and communications involved in the task.	The health workers may not be using the best techniques because they may not have had recent appropriate training. They may also have developed poor habits after training.
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When talking with health workers or specialists, ask for specific information. Say, for example, "Imagine that you are a health worker. If I tell you that I have been coughing a lot, what is the first thing you would do?" The answer might be, "I would start by taking a history." This is too vague, so you should ask, "Yes, but what would you actually say to me?". The answer might then be, "When did your cough start?": and so on.

Source of information	Advantage	Disadvantage
Observation of health workers regarded by coworkers as good at the job.	Most workers try to do a better job when they are being watched.	Workers may be competent but still unskilled at the particular task whose performance you are watching. The circumstances at the time may be atypical. You may not be watching, or be aware of every step being performed.
Manual and textbooks	Many tasks are described in medical textbooks, teaching manuals or guidelines issued by the Ministry of Health or WHO. Use these to fill any gaps in your own experience and the information collected from other sources.	These are written for many levels of training. Skills can be described in too little detail. They are written for use in many countries and under many circumstances.

When watching workers do their tasks, make notes. When the task is completed, ask why actions for which- you see no reason were done. Watch other workers doing the same tasks. If two or three others follow similar patterns, stop your observation.

b. List steps

Convert the information you have collected into an organized list, with the steps in the order in which they occur.

Example

In the job described on page 5, "conduct immunization outreach sessions", one of the tasks listed was "immunize children". The steps in this task, in performance order are:

- Remove vial of vaccine from cold box
- Clean top of vial with alcohol.
- Draw up correct vaccine and dose in sterile syringe.
- Position child so he/she cannot move.
- Clean injection site with alcohol
- Inject vaccine.
- Return vial to cold box.
- Place syringe and needle in pot for cleaning

EXERCISE C

Below is a list of tasks necessary to complete the CHWs job in a diarrhoea prevention programme:

1. Encourage breastfeeding.
2. Teach good nutrition.
3. Teach basic hygiene for individuals, families, households,
4. Encourage development of safe water supply and storage;
5. Teach mothers to mix and give ORS to children with diarrhea.

Make a list of the 8 steps necessary to carry out task no. 5. The first two are:

1. Select place for teaching.
2. Persuade mothers to gather for lessons.

4. Develop Learning Objectives

Learning objectives describe what the trainee should be able to do at the end of a learning session. The evaluation of the trainees when they have completed their courses will be based on these objectives, so they should be clearly stated. To prepare objectives:

State actions that can be measured or observed. For example, a health worker may need to be able to *recognize* the child with dehydration. But you, the trainer, cannot see whether recognition takes place unless the trainee names or identifies what he/she has recognized. So, a good learning objective for this would be: "*Identify* the following signs of dehydration when you see them on a patient or in a photograph: sunken fontanelle, poor skin swelling under skin and dry mouth."

State how and where trainees must be able to perform an activity. This will vary according to what they are being taught. For example, depending on the task, trainees may have to perform it:

- using household utensils
- in an environment similar to a health centre - in a community without a midwife.

Describe the standards for acceptable performance. These tell the trainees how well and at what level you want them to perform.

A standard can refer to manner ("in a friendly tone of voice"), accuracy ("to the nearest centimetre"), speed ("within 5 minutes"), completeness ("so that all spaces on the form are complete") and frequency ("5 times"). Required standards should be clearly described and trainees informed where the tasks are to be performed, e.g., in the classroom, simulated situation or on the job.

Once learning objectives have been developed, list the *knowledge, skills and attitudes* the trainees need to accomplish the objectives and perform the task correctly. Review the list of steps in each task. What knowledge, skills and attitudes are needed to perform each step effectively? Knowledge is the facts the health worker needs to know to carry out the job. Skills may be manual (i.e., use of hands in effectively using equipment or performing a task), verbal, arithmetical, decision-making or communication skills. Attitudes are shaped by first-hand experience, and sharing others' experiences. They are more difficult to teach, but spread when experiences are shared within a team and community.

Example: Task: Immunize children

Steps	Knowledge/skills/attitudes
1. Remove vial of vaccine from cold box.	-
2. Draw up correct vaccine & dose in sterile syringe.	Know dose for each vaccine.
3. Position child so he/she cannot move	Be friendly, reassuring.
4. Inject vaccine.	Use correct technique for injection.
5. Return vial to cold box.	Know temperature for maintaining vaccine potency.
6. Place syringe & needle in pot for cleaning.	

EXERCISE D

Review the steps in the task teach mothers to mix and give ORS (Exercise C). List the information, skills and attitudes needed to perform these steps.

Task: Teach mothers to mix and give ORS

Steps	Knowledge/skills/attitudes
1. Select place for teaching.	
2. Persuade mothers to gather for lessons.	
3. Collect ingredients & equipment.	
4. Inform mothers of time & place.	
5. Teach signs & symptoms of dehydration.	

6. Mix sugar & salt in water.	
7. Watch each mother mix solution.	
8. Visit homes for repeat demonstrations.	

EXERCISE E

STORY:

Joe, a new instructor, was teaching health workers about sanitation. The health workers were to work in three villages to help villagers build latrines. Joe explained the importance of latrines, how deep to dig them, and how far they should be from houses and water sources. He showed drawings of different ways to build latrines, and took the trainees to see two "model latrines" with concrete platforms. He advised them to "set objectives" for the number of families they hoped would have latrines after one year.

At the end of the course, Joe gave the health workers an examination that included questions such as "How far should a latrine be from a well?" and "Why is a concrete platform better than wood?" Everyone answered the questions correctly, and Joe was pleased.

But when the trainees started working in their assigned villages, they ran into difficulties. Mary found that the villagers disliked the idea of latrines because they "smell bad" She did not know how to deal with that. Frank persuaded seven families to build latrines. To keep them a safe distance from the community water supply, the latrines were built somewhat away from the village. But people seldom used it. It was too far to walk every time they needed it, they said.

John persuaded the chief of the village to set an example for his people. John, himself, directed the construction to demonstrate to the people how easy it could be. Cement proved to be a bit more expensive than John had anticipated, however; so he cut back on the amount he used in the slab, and made up the difference with some grayish soil he had found just outside the village. And the reinforcing wire-mesh hadn't arrived by the time they were ready to pour the slab for the platform, so they went ahead without it. He was never entirely clear on the reason for using it, anyway; everyone knew how strong concrete was. When the latrine was built; everyone came to see it. There was exceed comment, people were pleased.

Clearly, Joe's teaching about how to motivate community people to build and use latrines was not enough. If you were Joe's supervisor, what suggestions would you make to him before he gives the training again? Make a list.

Unfortunately, teachers often waste time teaching unnecessary knowledge and skills. For each point that you teach, ask yourself:

- What would happen to the trainee's ability to do the task if this item were NOT taught?
- How will this information increase the trainee's skills?
- Could this time be better used to teach something more important, or the same thing more effectively?

- What has gone wrong in practice that could be prevented by teaching different skills or better understanding?

5. Develop Training Plans

A training plan is a written description of the learning activities for any given task. It includes one or several lesson plans. Each lesson plan covers the following aspects:

a. What will be taught

The lists of tasks, steps, objectives and knowledge/skills/attitudes that you have now established constitute the content of the training.

b. How to teach the lesson(s) (training methods)

The training methods depend on what needs to be taught, certain administrative factors (e.g., classroom facilities, finance, etc.), and certain characteristics of both trainees and trainers (e.g., culture, educational background, etc.). (See Section 6 on the selection of appropriate training methods.) Activities which make the trainees use the information, not just repeat it, ensure more effective learning.

c. How time will be scheduled

If several lessons are required to cover what needs to be taught, schedule lessons of appropriate length and content. Plan to teach all of a given task and, if possible, closely related tasks, in one lesson. Teach the skills the trainee will use first in the earliest lesson. Make each lesson short enough so that neither you nor the trainees become too tired. Lectures, reading or activities that require more concentration should be scheduled for the morning. The afternoon, when students are getting tired, is a good time for active discussion, role play, demonstrations, etc. Build integration of different tasks, and the links between knowledge, skills and attitudes, into your teaching. Allow time for trainees to reflect together on their experience.

d. Equipment

List the equipment and supplies needed for teaching each task in the outline lesson plan for that task. When the lesson plan is complete, summarize the list. Is the equipment available from a clinic, training school, etc.? If it must be purchased, is money available? If not, what can be substituted, made by trainees, donated, etc.?

e. Acceptable standards of performance

List specific performance standards trainees should meet to demonstrate their mastery of a task after training. (See, in section 3 on Learning Objectives, the part on standards.)

f. Teaching aids

You will need to obtain, adapt and/or develop-these List the aids needed for teaching each task. Aids for the trainer may include notes on what to say, lists of things to look for when observing trainees' practice, equipment checklists, blackboard and chalk. The trainees may need handouts outlining the subject or describing steps to be followed in learning a skill, visual aids such as pictures and posters, audiovisual aids such as role-playing and case presentation, filmstrips,

flipcharts and slides. Adapting the latter three to fit the local situation may take less time and money than developing them from scratch. (Sources of audiovisual aids are listed at the end of this article.)

6. Select Appropriate Training Methods

Some teachers feel they must do all the talking. This is the way they were taught. Learning and applying new teaching methods is difficult. It is easier to repeat the same lecture year after Year. But students learn little if they only listen to lectures. They learn best from performing an activity, i.e., practice. New teaching methods mean more preparation, planning activities which will help trainees use the information taught, and explaining the new methods to the trainees.

a. Examples of teaching methods

A lesson can be an active or passive experience for students, depending on what teaching methods are used. Methods range from:

More active methods (Do and remember)	- Supervised practice - Role-play - Demonstration - Discussion - Drams - Pictures
TO ↓	- Written examples
Less active methods (Hear and forget)	- Paper & pencil exercises - Individual study - Reading assignments

b. Criteria for selecting appropriate training methods.

- Health workers' future professional roles, work setting;
- Their past experiences, culture including spoken and/or written language, meaningful symbols and images), past learning experiences (whether they are used to learning by watching others, listening to stories, etc.);
- Their personalities (whether shy or outgoing, can accept constructive criticism, etc.);
- The culture and background of the people whom they will be serving in the community;
- Administrative factors such as resources (finance, personnel, time, facilities) or the number of trainees in the group; and
- Whether knowledge, skills or attitudes are being taught.

c. Methods for teaching knowledge, skills and attitudes

You can transmit *knowledge* by:

- Telling the facts (as in a lecture).

- Referring to relevant manuals and textbooks, specially-prepared slides and posters.
- Using trainees real-life experience (as the village instructors did to teach diarrhoeal dehydration prevention in the story on page 2).

Skills may be manual, communication and decision-making skills. Skills involve remembering and applying facts. You can teach skills by using the following methods in sequence:

1. Describe the skill step by step, in words and written handouts, then explain why it is important.
2. Demonstrate it correctly and visibly, explaining what you are doing. Give the trainees a written description of the steps so they can listen and watch instead of taking notes.
3. Provide plenty of time for practice: role-play, projects, job experience, return demonstrations and demonstrations to other trainees.

Methods for teaching knowledge, skills and attitudes



Attitudes are formed by first-hand experience, and by learning from other people's experiences. Although they are difficult to teach, trainees' attitudes can be formed or modified during training. Some of the training methods you can use are:

- to provide examples or models. Teachers are role models. If they are rude, careless or always lecturing or, on the other hand listen and encourage discussion, trainees will tend to follow their example;
- to provide direct experience. Seeing a child with the after-effects of polio will have more impact than an hour's lecture;
- to provide opportunities for discussion in which trainees trade experiences. A trainee's experience can influence the others; what the teacher says is less important and he/she should speak very little in these sessions, providing questions if the, discussion seems confused or making a summary that covers the unresolved attitudinal issues;

- to provide role-playing exercises. Attitudes can change if one understands the other's point of view and role-playing fosters this kind of understanding. It can also be used to provide "dry-run" practice with feedback from peers and/or teachers;

- provide information on how behaviour affects health.

Training methods may be used in combination, in a variety of settings. You will not always need to use all methods. For example, people do not always need to be told how to do a task; they can watch it being done and then try themselves. The important thing is to ensure that the learner be given a chance to practice the task, in a setting as much like the job situation as possible Practice should be repeated until the learner can do the task correctly.

EXERCISE F

You are planning a lesson for VHWs who will teach mothers to give ORS. Develop a training plan from the task analysis provided in Exercise D, using the worksheet below.

Task: Mix and give ORS

Work to do (steps)	Knowledge needed	Teaching method	Time needed	Equipment needed	Performance standard required
1.					
2.					
8.					

7. Make a Budget

The budget should include the cost of the initial training session(s) plus follow-up activities such as refresher courses and evaluation. Time is needed from when money is requested until it is on hand, so plan budget well in advance. About 10 percent of the total budget will be needed for training the trainers before the course starts. In planning your budget, consider:

- classroom facilities (rent, cleaning, repair)
- classroom equipment (chairs, tables, blackboard, mimeograph machine)
- classroom supplies (pens, pencils, paper)
- teaching aids for use inside and outside the-classroom (manuals, posters, charts, slides/ films and "props" for demonstrations, role-playing and practice*)

* The best "props" are familiar objects which can be borrowed at no cost. Remember that, if the training method is practice in a real-life situation, all the teaching aids, including medical equipment, are already there.

- trainees' and trainers' travel to training site and on field visits
- their accomodation

- trainees' and trainers' per diems, and
- contingencies.

8. Conduct Training

The preceding sessions cover preparation for training. When you conduct training, you should do the following:

a. Organize equipment and teaching aids

Organize the equipment and teaching aids you will use inside and outside the classroom (for lectures, reading assignments, drama and role-playing sessions and supervised practice). Before each lesson, review your checklist to make sure that you have all the equipment and aids you need and that it is in working order.

b. Motivate

Get to know trainees individually. Let them know you care about them. Learn what their goals are. Take time to answer their questions and help them get to know each other. Share information about yourself, especially as it relates to their future jobs and attitudes.

c. Explain what you will do in the lesson

Tell the trainees the purpose of the tasks they will learn so they will know in advance what they are trying to achieve. Explain when, where, with whom and approximately how frequently they will need to perform this task on the job. Discuss the dangers of wrong performance. Explain exactly how well you expect them to be able to do the task when the training is over, and describe the practice situation in which they will demonstrate what they have learned.

d. Give a clear and understandable presentation

Every lesson should start with situations, ideas or problems already familiar to trainees. Start with their knowledge and experience and build on that. Speak loudly and slowly so everyone can hear and understand you. Use words the trainees know; when using new words, explain them. If you are in a classroom, organize what you write on the blackboard; charts, posters, pictures and flannelgraphs should be large enough for everyone to see. When you present a new idea or treatment methods, use real-life examples. When teaching a new task, demonstrate it: explain what you will do, show how to do it, and explain why you do it the way you do. Show one step at a time. Summarize the main points at the end of the lesson. Keep it short.

e. Provide individual attention and feedback

Trainees learn at different speeds and in different ways. Observe each trainee. Allow for individual differences by leaving enough free time for study and practice each day and by using a variety of teaching methods. If some are slower than others, arrange additional practice or extra instruction. Those who are faster can help the slower ones or spend time observing health workers in action.

After practice or evaluation sessions, trainees should be permitted to evaluate their own performance, with your help. Tell trainees what they have done well, what was not done as instructed and suggest improvements. Be specific. For example, you have watched a trainee give

an injection to a baby. When he/she is finished, you might say, "You have done a good job. You drew up the vaccine correctly. Your technique in giving the injection was correct. But you should have told the mother to hold the baby like this (demonstrate). She moved too much. Altogether, though, I am proud of your performance." Feedback should encourage the trainee to learn and not give the impression that he/she is not making progress.

f. Ensure that trainees are learning

Find out at the beginning of a lesson whether or not all trainees have the basic knowledge needed for that lesson. During the lesson, find out whether or not the main skills or facts have been learned by all trainees. (See Section 9 on Evaluation.) If not, make arrangements for follow-up.

g. Promote group interaction

The first few days of a training course are the most difficult. This is when trainees should get to know each other and learn to work together. From the first day, include activities to meet these needs.

Most people find it easier to listen than to talk, especially when they are with strangers. A few find it easier to talk than to listen and do nearly all the talking. A good trainer finds ways of helping the quiet ones speak out and tells those who are quick to speak that others should be given a chance to speak and share their ideas with the group. Trainees learn more effectively when they are able to speak out and listen to others.

An effective trainer learns to be mostly silent and to listen actively. When he/she does speak, he/she shows what was learned while listening and helps draw out ideas, especially from those who say the least. He/she may also build a composite picture, using others' contributions to promote new or more complete understanding.

As group leader, your actions say more than your words. It helps to:

- be friendly,
- laugh with people, never at them,
- sit in a circle with everyone else, not apart or behind a desk,
- dress in the local style, especially if you are a local,
- listen more than you speak and never interrupt,
- protect those who speak slowly or have trouble expressing themselves, from being interrupted, and
- invite constructive criticism, admit your own mistakes and encourage trainees to do the same.

EXERCISE G

The following feedback would discourage a health worker. Restate it in a way which encourages as well as corrects:

The health worker was being trained to give an injection. The trainer asked for a return demonstration. The worker used the correct technique for assembling the syringe and needle and drawing up the solution. Before giving the injection, he placed his finger on the needle to help guide it. The instructor pointed to the finger and said, "No, that is not correct. Remember, in class, I told you never to touch the end of the needle that goes into the skin."

9. Evaluate Training

Evaluation is done to find out:

- if trainees have reached training objectives during, and at the end of the training and how performance can be improved;
- if trainees are able to perform the required tasks on the job;
- what parts of the training need improvement; and
- if the trainer has done his/her job well and how his/her own performance can be improved.

To find out what trainees have and have not learned and how their performance can be improved, evaluation should be done during and at the end of training. Job performance should also be monitored on a continuing basis to make sure trainees are not forgetting how to do any tasks. Evaluation during training is more reliable than evaluation at the end of the training because:

- the worry over one final exam is removed
- motivation to pass is spread over the whole course,
- trainers receive feedback during the course about what standards to expect, and
- they can identify problems and give them special attention before the end of training.

You can use both formal and informal evaluation methods. These include multiple choice and short-answer questions, confrontations with real-life patient-care problems, checklists (each step of a task is checked off as it is done correctly), essays, oral exams, skill performance (including trainee demonstrations), observation and self-assessment. Discuss the trainees' evaluation results with them so that they know what they have and have not learned well.

Evaluation also helps to show what parts of the training need improvement. If evaluation shows that trainees have not learned a task well, find out which steps of the tasks and therefore, of the training, are being wrongly done. Reconsider the training objectives, content and methods. Concentrate on rethinking these and redesigning those particular steps before your next training session.

But remember, training does not always enable trainees to do a task. Maybe some of the problems mentioned at the beginning of this module (see page 11) are preventing correct performance. If so, other solutions will have to be found.

EXERCISE H

Five students took a test in the middle of their training session. It was divided into four parts, covering the main topics of the session so far. The results were:

		Part 1	Part 2	Part 3	Part 4
Trainee	a	+	x	x	x
	b	+	x	x	+
	c	+	+	+	+

	d	+	+	x	x
	e	+	+	x	+

+ = satisfactory performance

x = not satisfactory

As trainer, what would these results tell you

- about the overall knowledge of Trainee a)? Trainee c)?
- about Part 1 of the training ? part 3?
- about the evaluation test?

In addition to evaluating trainees and the training, you should also evaluate your own teaching performance To do this, you can:

1. Do a self-evaluation.

Make a checklist of the important aspects of teaching, like:

- coverage of your course objectives and your lesson plan
- communicating clearly and simply
- participation by all trainees
- relating material covered to trainees' experiences
- fairness and friendliness

Here is a list you can use to evaluate yourself, for your students to evaluate your teaching, or for you to evaluate the teaching of others.

Checklist FOR TEACHERS' SELF-EVALUATION

Do I:

1. Relate the subject to trainees' experience?
2. Encourage participation by asking questions and presenting problems?
3. Prepare teaching plans and materials in advance?
4. Know the subject adequately?
5. Cover the material that was planned, but leave out what is not important?
6. Speak and write clearly?
7. Give examples or tell stories to illustrate ideas ?
8. Emphasize and repeat the most important points ?
9. Provide time for practice, study and review?
10. Openly admit mistakes or lack of knowledge?

11. Respond to trainees' errors with positive criticism and patience?
12. Make myself available to trainees for discussion after class?
13. Evaluate whether trainees will be able to use their learning in real-life situations?
14. Obtain feedback from the supervisor regarding trainee's on-the-job performance and his/her supervisor's suggestions for improving the training course

2. Have yourself evaluated by another trainer.

A training advisor or another trainer can be a silent observer in your class. After the class, you and he/she can discuss the strengths and weaknesses of the class and how it might be improved. If you are part of a team of instructors, you can observe each other's classes and meet regularly each day to discuss your classes. This way, everyone benefits from the suggestions and criticisms.

3. Have trainees evaluate you.

In the typical training situation, evaluation is usually a one-way process. The trainer judges the trainees. This top-down approach favours the strong and resists change.

If health workers are to help people work towards change, evaluation should be in both directions, not just one. If instructors and trainees all take part in evaluating each other and the course, this helps prepare the health workers to work with people not as bosses or authorities, but as equals.

You can hold a short evaluation discussion at the end of each teaching session. Ask the trainees how they liked the class, what they learned and how it might have been better. At first, it may be hard for them to speak up. But, if you make it very clear that you welcome friendly criticism, trainees can become good evaluators by the end of the course.

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D. Werner & B. Bower: *Helping Health Workers Learn*, Hesperian Foundation, PO Box 1692, Palo Alto California 94302, USA.

World Education: *From the Field*, 215 Park Avenue South, New York, N.Y. 10010, USA.

Sources of health teaching materials in English

Teaching Aids at Low Cost (TALC)
Box No 49
St Albans, Herts. AL1 4AX/UK

World Health Association (WHO)
Avenue Appia
CH-1211 Geneva 27, Switzerland

United Nations Children's Fund (UNICEF)
Route de Pregny 10
CH-1292 Chambésy, Switzerland

International Development Research Centre (IDRC)
PO Box 8500
Ottawa, K1G 3H9
Canada

World Neighbours
Overseas Development Materials
5116 North Portland Avenue
Oklahoma City, OK 73112
USA

Christian Aid
PO Box No 1
London SW1W 9BW/UK

Save the Children Fund
157 Clapham Road
London SW9 OPT / UK

(From: Contact No. 78, Christian Medical Commission world Council of Churches, Geneva).

Session 54: Planning and facilitating a practice session

Session 54, Handout 54A: Guidelines for practice sessions

Session 54, Handout 54B: Evaluation of practice session

TOTAL TIME

2 1/2 hours for preparation
8 hours for implementation

OVERVIEW

The more opportunity participants have to practice designing and implementing sessions with their peer group, the more prepared they will be for their own "trainees" later on in the field. Using what they know about objective-based training, experiential learning, and facilitation skills, they plan and lead the group in short practice sessions. Following each session, participants evaluate their peers' work and progressively gain insights and strategies regarding creative design and effective group management.

OBJECTIVES

- To design and facilitate a short training session which follows the experiential learning cycle. (Step 2)

- To evaluate the effectiveness of each short session based on criteria established during Sessions 49 and 51. (Steps 2, 3)

RESOURCES

- Any resources used thus far in the training program.
- Trainer Profile from Session 51

Handouts:

- 54A Guidelines for Practice Sessions
- 54B Evaluation of Practice Session

MATERIALS

As determined by participants.

PROCEDURE

Trainer Note

The assignment of the practice session should be made as early as the end of Session 49 (Training Techniques and Materials). Introduce the task to the group by making (or eliciting from them) the following points:

- Practice sessions provide participants with an opportunity to synthesize and apply new learning from the training thus far.
- Participants increase their involvement in the training, i.e., participants move one step closer to becoming trainers.
- Designing and implementing sessions provide participants an opportunity to take some risks in experimenting with a new idea or strategy in a supportive environment.
- Practice sessions provide an opportunity for feedback from peers and trainers on both training design and facilitation style.

Give participants Handout 54A (Guidelines for Practice Sessions) to read, and answer any questions they may have on the directions and information. Also distribute Handout 54B (Evaluation of Practice Activity), and explain to the group that they will use the sheet along with the trainer profile from Session 5 as a basis for giving feedback on session design and facilitation skills. Ask participants to modify the sheet if they wish such that it becomes a useful instrument for this group and occasion. You may wish to show participants some sample formats for lesson plans, such as Trainer Attachment 27A (Sample Session Plan). It is helpful to have the group agree on one simple format for writing out their practice sessions.

Tell the group they have the remainder of the day (2 L/2 hours) to design and practice their sessions and that you will be available as a resource or "trainer consultant". If possible have time blocks written out on newsprint and ask participants to sign up for a particular hour to do their session. Please note that the 30-45 minute practice session length is a realistic time frame which allows participants enough time to facilitate a complete experiential learning activity. Less than 30 minutes increases the tendency for participants to "cram" too much into a short period of time. The 30-45 minute session also provides the facilitator with more opportunity to encounter

and deal with process issues and group dynamics.

Unless the training group is small (less than seven members or so) split participants into two or three sub-groups and run the sessions simultaneously. Arrange for an experienced trainer to be present in each group to facilitate the feedback and provide staff input. Another less-favorable option would be to team up participants and ask them to co-design and co-facilitate their session. While this option is better than none, participants have already done several tasks and presentations in teams and need an opportunity to "fly solo".

If possible invite local health clinic workers, Peace Corps staff, MOH personnel, and field agents from international health organizations to participate in the practice sessions and provide feedback to the group.

Step 1 (30 min)

Setting Up the Format

Assemble the group and explain the procedure for the practice sessions: Each participant will conduct his or her 30-45 minute session according to the schedule posted on the wall. Immediately afterwards, the trainer will facilitate a 15-20 minute evaluation of the session among all participants and staff.

Distribute several copies of Handout 54B to each participant. (Each person should have as many copies as there are practice sessions.) Have the newsprint of the Trainer Profile from Session 57 on the wall and ask the group to review it now and use it for reference during the evaluations.

Ask for a volunteer to act as timekeeper to ensure that the sessions run as planned. Check for any final questions the group might have.

Trainer Note

The following is a suggested procedure for the evaluation phase after each session:

- The person who facilitated the session begins the process with a self-evaluation.
- The participants then provide commentary identifying effective and non-effective aspects of the session and giving suggestions for improvement.
- As appropriate, the trainer provides feedback in areas not yet mentioned by participants and gives his or her response to what has already been said.

Step 2 (7-8 hours)

Facilitating and Evaluating Practice Sessions

Have participants conduct their sessions. After each one, facilitate a 15-20 minute evaluation of the session.

Step 3 (20 min)

Applying New Ideas to the Field

Ask the group to reflect on the new ideas and information they gained during the practice sessions. Have them briefly discuss how they might use or adapt the new session strategy for specific opportunities and situations in the field.

If possible, identify sessions in the next phase of training which may be co-facilitated (either participant with participant, or trainer with participant) and arrange for people to sign-up for specific ones.

Finally, congratulate the group for their hard work and, hopefully, a job well-done.

Session 54, Handout 54A: Guidelines for practice sessions

- You will design and facilitate a 30-45 minute training session based on the experiential learning model.
- The rest of the group and staff members will be your participants. Hence, we will not "hear" about your designed session; we will experience it as your group.
- You may choose any content area that is relevant for you and your group (e.g., primary health care, training, project planning, cross-cultural issues, and so forth).
- At the beginning of your session, set the stage by explaining the training situation for which you designed the activities.
- Prepare a lesson plan that can be reproduced for distribution to everyone later. The plan should include at least objectives, activities, procedural steps and materials.
- Design for a 30-45 minute session. Don't end up rationalizing, "If I'd had more time...". To give everyone an equal opportunity we will hold you to the time frame.
- Use your co-participants and trainers as resources during the planning time. "Bounce" your ideas off others.

Session 54, Handout 54B: Evaluation of practice session

Date _____

Facilitator _____

Number and Type of Participant _____

Objectives & Activities _____

Materials used: _____

1. What did the facilitator do?

(Check appropriate items)

Set an appropriate climate for learning _____

Listened and asked questions _____

Guided the activities _____
Stimulated and encouraged discussion _____
Had the participants use the materials _____
Listened and participated in a discussion of problems _____

Others: _____

2. What was the participation of group members?

Took active role in the activity _____
Answered questions _____
Made observations _____
Shared ideas and experiences _____
Discussed a problem or felt need _____
Showed enthusiasm _____

Others: _____

3. How well was the session designed?

Followed the experiential learning model _____
Had a logical sequence of activities _____
Included start-up and closure _____
Included peer learning _____
Accommodated individual learning styles _____
Used methods appropriate for learning the content information _____
Objectives were met, desired learning took place _____

Others: _____

Session 55: Adapting training materials

Session 55, Handout 55A: Simplify your language

TOTAL TIME: 3 hours

OVERVIEW

Volunteers and other health workers in the PHC programs have access to a variety of health, related training materials including trainer's manuals, self-instructional booklets, modules, session plans, handouts, and so forth. These materials are developed to be used as guides and require adaptation to fit the needs of a particular training event and group. During this session, participants take a critical look at several different training materials and determine the learners for whom they were each designed. Then they explore possible ways to modify the examples to suit other kinds of audiences and training situations and develop a general checklist for adaptation.

OBJECTIVES

- To list several ways in which the WHO Diarrhea Treatment Chart or another example of a training material can be used for learning. (Step 1)
- To identify the kind of learner or audience for whom a given training material is designed. (Steps 2, 3)
- To develop a checklist for adapting materials to different learners and situations. (Step 4)
- To adapt a training material to suit a specific group and event. (Steps 5, 6)

RESOURCES

Teaching For Better Learning (WHO)

Handout:

55A Simplifying Your Language

MATERIALS

WHO Diarrhea Treatment Chart, assorted training materials used during this program or in the field.

PROCEDURE

Step 1 (10 min)

Brainstorming Ways to Use the WHO Diarrhea Treatment Chart

Post the WHO Diarrhea Treatment Chart or some other training material in front of the group. Ask participants to consider all the creative ways the chart could be used as is or with minimum adaptation to train someone in the given technical information. List these on newsprint and continue brainstorming until all possibilities have been exhausted. When the list is done, use it to illustrate the point that much of the work in training design is the adaptation of available materials to suit the specific participant and situation.

Trainer Note

The WHO Diarrhea Treatment Chart is given here only as an example of a training material. Another kind of material such as a diagram, a handout, or a case study can be substituted if more appropriate.

Some possible ways to use the WHO chart would include:

- as a display to stimulate discussion on referrals
- as a reference on the wall in a clinic
- as a visual which complements a demonstration
- as a self-instructional chart for practicing diagnosis
- as a handout for field reference and use
- etc.

Step 2 (15 min)

Defining the Participant

Explain to the group that once training planners (trainers, participants, supervisors, and/or community members) have decided on what will be learned, a first step in the process of training materials adaptation is to analyze the participant or group in relation to the learning that is to occur. Ask participants to use their understanding of learning styles, and information regarding specific working situations to examine potential participants.

Trainer Note

Use these questions to help the group understand some of the issues to be considered:

- Who will be the participants in workshops you may be conducting? (Mid-level managers, nurses, community health workers, fellow PCVs, school teachers, mid-wives, youth groups, etc.)
- What is the participant's receptivity level? (felt need, curious, indifferent, solicited or did not solicit the training)
- What particular challenges to learning will the participant face? (the learning contradicts previous learning, challenges myths or beliefs, requires learner to significantly change attitudes/behaviors, literacy, position in the hierarchy.)
- What conditions will help the participant overcome these challenges? (training that is self-paced/guided, structured/ unstructured, individual/group, classroom/field, short activities/long sessions, peer teaching/trainer-led)
- What specific techniques and materials are called for under the above conditions?

Have the questions posted on newsprint and write the group's key responses under each one.

Step 3 (15 min.)

Analyzing Available Training Materials

Ask the group to once again consider the WHO Diarrhea Treatment chart and one or two other examples of training materials used in the program. Have them determine:

- What assumptions each material makes about the participant or learner for whom it was designed. (Refer to the questions in the previous Trainer Note and decide for whom the material has been designed.)
- What overall tone is conveyed in the material.
- How the material would need to be adapted to accommodate specific kinds of participants identified through answers to the questions above.

Step 4 (20 min.)

Making an Adaptation Checklist

After the group has examined how they would go about adapting several of the sample materials, ask them to generate a simple adaptation checklist that can be used as a guide in most situations. As participants give their responses, write them on newsprint and ask the group to give specific examples for each point.

Trainer Note

Possible points for a checklist or adaptation of materials include:

- Is the material actually needed for the learning situation?
- Is all the information captured in the material necessary?
- Is the material primarily a training material or a reference?
- Is the technical terminology explained, necessary, useful?
- Are instructions clear and in a logical order?
- Is local, familiar vocabulary used? (Names, idioms, etc.)
- Is the ratio of written language to visualization correct?
- Are the symbols, graphs, diagrams, and pictures "readable" by the learner?
- Are the visuals culturally appropriate?
- Are the examples, anecdotes, stories, etc. culture and region-specific?

If participants have done Session 26 (Adapting and Pretesting Techniques & Materials) ask them to review the design criteria for adapting visuals. If the group has not done this session, modify Steps 3 and 4 here to include the main issues in adapting visual materials.

15 Minute Break

Step 5 (1 hour)

Practicing an Adaptation

Ask participants to form pairs to practice adapting a training material. Have each pair:

- select a specific type of participant (using the questions about the learner from Step 2)
- identify what objective is to be met/what learning is to occur
- choose a training material that is presently unsuitable for the situation and needs some adaptation
- make the appropriate adaptations
- prepare to report to the large group what you adapted in the material and why using the checklist as a reference.

Distribute Handout 55A, Simplifying Your Language, and tell participants to make use of the information as desired.

Trainer Note

Suggest to participants that they use a learning situation and material from the workshop design they developed during Session 53.

Step 6 (45 min.)

Exchanging Ideas and Suggestions

Have each of the pairs share their adaptation with the rest of the group and ask for any response and feedback from peers. As the adaptations are explained draw the groups attention in particular to examples of ways in which to simplify materials.

Close the session by emphasizing the need to pretest adapted materials to ensure their suitability.

Trainer Note

See Session 26 for more specific information and "how to's" on pretesting.

Session 55, Handout 55A: Simplify your language

A checklist for simplifying your language when writing for non-English speakers

1. Use words that are short and simple.	NO	A conjunction appropriately connects two parallel constructions into a single, unique utterance thereby combining the sense of both the original constructions.
	YES	A conjunction joins two sentences to make one sentence. The new sentence has the same meaning as the first two sentences.
2. Use proper nouns that are easy to pronounce, short and well-known.	NO	Yarkpowolo lives in Sanniquelli.
	YES	Flomo lives in Harper.
3. Define technical terms before using them.	NO	Opaque objects make a shadow.
	YES	You cannot look through a sheet of paper. Paper Is an opaque object. You can look through a piece Or glass. Glass is not an opaque object. Opaque objects make a shadow.
4. Be careful in using common words to refer to a special meaning. Define the special meaning before using the word.	NO	The mouth of this bottle is very wide.
	YES	The top of the bottle is open. This part is called the mouth of the bottle. The mouth of the bottle is very wide.
5. Use specific examples and nonexamples for de fining technical terms.	NO	Work is done when something is moved.

	YES	Work is done when something is moved. When Flomo pushes a 100-lb rock through a distance of 50 feet, work is done. When Flomo pushes the same rock just one foot, he is still doing work. When Flomo pushes the rock, but it does not move, no work is done.
6. Use pictures to present complex visual information.	NO	Take a square piece of paper. From each corner, cut a diagonal almost to the center. Leave about half-an-inch from the center.
	YES	Take a square piece of paper. Cut from four corners like shown in this picture.
7. Be careful with verbs that have the same form as nouns.	NO	Name the part to which the arrow is pointing.
	YES	Write the name of the part to which the arrow is pointing.
8. Be sure that critical adjectives are emphasized.	NO	On a full-moon day, the lit side of the moon is away from the earth.
	YES	The side of the moon that reflects sunlight is called the lit side. During the new moon day, this side is away from the earth.
9. Verb phrases (verb + preposition) are difficult to understand. Avoid their use or define them before using.	NO	I called up my friend on the telephone. I could not put up with bad things he told me.
	YES	I called my friend on the telephone. I did not like the bad things he told me.
10. Use the simple tenses instead of other forms.	NO	Tomorrow, I would have been reading this book for two weeks.
	YES	I will read the book tomorrow. I started reading the book two weeks ago.
11. Avoid such auxiliary verbs as could, might, does.	NO	He does know how to read.
	YES	He knows how to read.
12. Avoid unnecessary	NO	Avoid the frequent use of unnecessary words.

words.		
	YES	Avoid unnecessary words.
13. Avoid qualifying a statement so much that it becomes complex or ambiguous.	NO	Light travels in straight line in most common situations.
	YES	Light travels in a straight line.
14. Don't use too many pronouns too often.	NO	Flomo used a paper tube to find out more about light. He bent it in the middle. He tried to see through it.
	YES	Flomo used a paper tube to find out more about light. He bent the paper tube in the middle. He tried to look through the tube.
15. Keep your sentences short and simple. Use two simple sentences instead of a complex or a compound sentence.	NO	Covering one of his eyes with one hand, Flomo looked through the paper tube with the other hand.
	YES	Flomo covered one eye with his hand. He looked through the paper tube with the other eye.
16. Use the normal sentence order.	NO	In our mouth, we chew our food.
	YES	We chew our food in the mouth.

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**Peace Corps Overseas Programming and Training Support Addendum to:
A Training Manual in Combatting Childhood Communicable Diseases, Volume II,
(ICE No. T0039A)**

Marguerite Joseph, Health Specialist
April, 2010

Step 3 (15 min)

Promoting Breastfeeding

Note: *The emphasis should be on promoting optimal breastfeeding during the first six months. This includes:*

- *Initiation of breastfeeding within one hour of birth*
- *Exclusive breastfeeding for the first six months, i.e. no other liquids or foods should be given to the infant*
- *Breastfeeding on demand, day and night (8-12 times/day), for adequate time at each feeding. Second breast should be offered after infant releases the first.*

Thereafter - Continued breastfeeding with complimentary feeding until at least two years of age.

Session 31, Handout 31B: Questions and Answers About Weaning

When should weaning begin and how long should it last?

Note: *Per addendum to Vol. 1, weaning foods are recommended as of the age of 6 months. It is no longer recommended that weaning foods be introduced from 4 months of age.*

Session 31, Handout 31C: Guidelines for Weaning

Note: *Same as above. Disregard mention of 4 months.*

Session 38, Handout 38B: Treatment Schedule for Malaria

Note: *Per addendum to Vol. 1 chloriquine is no longer the treatment of choice due to drug resistance. Please refer to the information below:*

WHO Recommendations on Malaria Treatment

In response to antimalarial resistance, WHO recommends that all countries experiencing resistance to conventional monotherapies, such as chloroquine, amodiaquine or sulfadoxine-pyrimethamine, use combination therapies. Preference is given to therapies containing artemisinin derivatives (ACTs) for falciparum malaria. This includes:

1. *Artemether/lumefantrine(Coartem®)*
2. *Artesunate plus amodiaquine*
3. *Artesunate plus sulfadoxine-pyrimethamine (in areas where SP efficacy remains high)*

4. Artesunate plus mefloquine (in areas with low to moderate transmission—not recommended for Africa)
5. Amodiaquine plus sulfadoxine-pyrimethamine, in areas where efficacy of both amodiaquine and SP remains high (mainly in the countries of West Africa). This non-artemisinin-based combination therapy is reserved as an interim option for countries that, for whatever reason, are unable immediately to move to ACT.

Note: Most countries have adopted ACT as the first line of treatment.

Session 38, Trainer Attachment 38A: Revised recommendation for preventing

malaria in travelers to areas with chloroquine-resistant plasmodium falciparum

Note: *As recommendations are outdated, please follow updated recommendations from other sources on malaria prevention for travelers.*

Session 40: Dehydration Assessment

Step 6 (20 min)

Determining Proper Treatment of Diarrhea and Dehydration

Note: *Disregard references to giving sugar-salt solution. Recommendation is limited to using low osmolarity ORS solution (pre-packaged) or other home-based fluids.*

RULES FOR HOME TREATMENT OF DIARRHEA

Note: *Same note as above*

Session 41: Rehydration therapy

Note: *Per the note above, disregard all references made throughout this session on giving sugar-salt solution. Recommendation is limited to using low osmolarity ORS solution (pre-packaged) or other home-based fluids.*

Session 42, Handout 42A: Sample KAP household diarrhea questionnaire

Note: *Use the following updated questionnaire.*

1. Can anything help prevent diarrhea?
2. What other names do people use for diarrhea?
3. Do you think children in the village can die from diarrhea?
4. Do you know a child that has died from diarrhea?
5. Did your child have diarrhea in the last two weeks? (If no, skip to Question #16)
6. What was given to your child when she or he had diarrhea?
7. Did you continue breast feeding your child when she or he had diarrhea? The same, more or less than usual?
8. Did you give liquids to your child when she or he had diarrhea? What liquids? The same, more or less than usual?
9. Did you give food to your child when she or he had diarrhea? What foods? The same, more or less than usual?

10. Did you seek advice or treatment from someone outside of the home for your child's diarrhea?
11. Where did you first go for advice or treatment?
12. Who decided that you should go there for your child's illness?
13. Where did you go next for advice or treatment?
14. During the period when your child was recovering from diarrhea, did you give him or her less than usual to drink, about the same amount, or more than usual to drink?
15. During the period when your child was recovering from diarrhea, did you give him or her less than usual to eat, about the same amount, or more than usual to eat?
16. Have you heard of ORS?
17. ASK TO SEE THE PLACE USED MOST OFTEN FOR HAND WASHING AND OBSERVE IF EACH OF THE FOLLOWING ITEMS ARE PRESENT: water, soap, ash or other cleansing agent.
18. When do you usually wash your hands with soap/ash?

KAP SURVEY ON DIARRHEA QUESTIONS TO ASK HEALTH PERSONNEL

Question #4: Reformulate to read: *When should you treat diarrhea with ORS solution? Why should it be used?*

Session 43: Implementing ORT in the village

Note: *Per the note above, disregard all references made throughout this session on giving sugar-salt solution. Recommendation is limited to using low osmolarity ORS solution (pre-packaged) or other home-based fluids.*